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ABSTRACT

After the Council of Ontario Universities' Task Force on Space and Utilization published the first volumes of its Building Blocks series on space standards in 1972, a subcommittee was established to receive reports from institutions on the original recommendations and their implementation. In this volume the most recent recommendations of the task force are presented, reflecting the most current thinking on space standards based on increasingly refined data. The first section of the report provides a general commentary on the work of the subcommittee, and the second part provides a more detailed examination of each space category according to the data collected, the input measures used, and the rationale for the space factors that have been adopted. (MSE)

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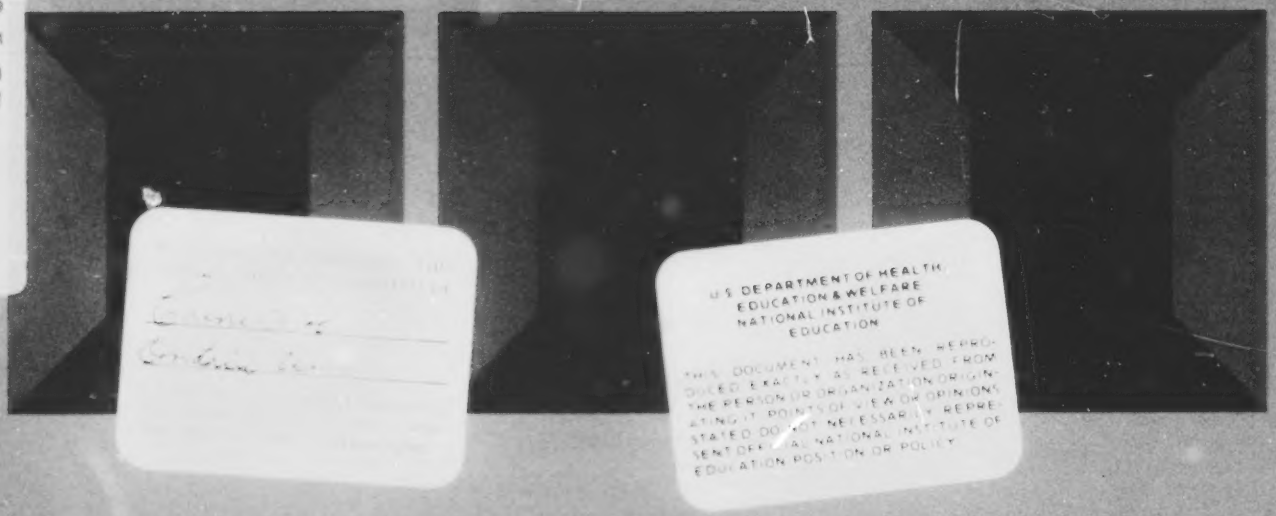
Council of Ontario Universities
Conseil des Universités de l'Ontario

Building Blocks

ED165621

VOLUME 6

Report of the Subcommittee Revisions to Building Blocks



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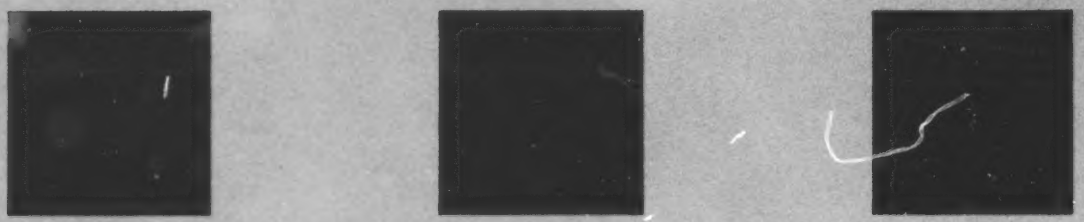

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Refinements to COU Space Standards

A Report of the Sub-Committee on Revisions to Building Blocks

Council of Ontario Universities
Conseil des Universités de l'Ontario
130 St. George Street, Suite 8039
Toronto, Ontario M5S 2T4

December, 1978

78-12

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PREFACE

The Report which follows is a summary of the work of the Sub-Committee on Revisions to Building Blocks since its creation in November, 1972. The revised COU space standards referred to herein were adopted by the Council of Ontario Universities at its 119th meeting which was held 11 March 1977.

1.0 INTRODUCTION

In July 1971, the Council of Ontario Universities established a Task Force - Space and Utilization, with the following terms of reference:

1. to develop a space and utilization guide which, incorporated with the appropriate cost data, would establish a method of allocating capital funds to the Ontario universities;

2. to review the document Guidelines for Facilities Planning and a Capital Formula, critiques received, and material from other jurisdictions and to produce a revised space and utilization guide for testing purposes;

3. to test the space and utilization guide at the sample of five universities (Guelph, Carleton, McMaster, Western and Brock);

4. to revise the space and utilization guide on the basis of the tests conducted and other pertinent information which might be received;

5. to submit the revised proposal for a space and utilization guide to the universities for comment;

6. to prepare a final version of a space and utilization guide for submission to COU; and

7. to be responsible to the Committee on Capital Financing.

There were a number of reasons for creating the Task Force at that particular time:

1. evaluation of the space standards implicit in the "interim capital formula";

2. evaluation of the recommendations which were to be included in the report from Taylor, Lieberfeld and Heldman arising from the Ontario Universities Physical Resources Survey (published 1972);

3. contribution to the development of a 'permanent' capital formula.

At about the same time, COU established two other task forces, to examine the needs of Education and Health Sciences. The Minister of University Affairs had suggested earlier that the interim capital formula should be extended to include these discipline groups.

In 1972, the three task forces published their reports in Volumes 1, 2 and 3 respectively, of the Building Blocks Series.

Since these task forces were to confine their work to consideration of space requirements only, it was necessary to establish a fourth task force to study the various aspects of building costs so that recommendations could be made on the two major elements of a capital formula viz. space and cost.

In the studies of space requirements, the Task Force - Space Utilization had the major task. It described the space categories to be examined and supplied a methodology to be used in deriving standards, as well as examining the requirements of all discipline groups then covered by the interim capital formula. The need to publish its report by Spring 1972, prevented the Task Force from completing items 5 and 6 of the terms of reference in the way it would have preferred.

Accordingly, the Committee on Capital Financing, in November, 1972, established a Standing Sub-Committee to continue the work begun by the task forces and in particular, to receive comments from all of the Ontario universities with respect to the recommendations contained in the Building Blocks Vols. 1, 2 and 3. The terms of reference of the Sub-Committee were:

1. To receive and review comments and recommendations from the universities;

2. To revise space factors as necessary;

3. To keep Building Blocks space guidelines up to date; and

4. To report to Committee on Capital Financing, Council of Ontario Universities.

The report of the Sub-Committee presented in this volume might be considered a supplement to Volume 1 of the Building Blocks Series, in that it does not attempt to duplicate the extensive research into other space formulae, nor for the most part to repeat the discourse on space standards and the development of space utilization factors. For this, the reader should continue to refer to Volume 1. This report, however, does present in a single volume the most recent recommendations of the Sub-Committee previously contained in Volumes 1, 2 and 3 of Building Blocks, reflecting the most current thinking on space standards that has been afforded by a lengthy review of increasingly refined data.

The main body of the Sub-Committee's report is presented in two parts. The first (section 2.0) provides a general commentary on the work of the Sub-Committee and describes the measures taken to examine and accommodate the suggestions and comments that had been received from the universities. The second part (section 3.0) provides a more detailed examination of each space category in terms of the data collected, the input measures used and the rationale for the space factors that have been adopted.

The membership of the Sub-Committee has changed since it was first formed and the names of those who have participated in the work are listed in Appendix 'A'.

2.0 REVIEW OF THE METHODOLOGY

2.1 Procedure

Building Blocks Vol. 1 pp. 9 - 12, contains a discourse on the development of space allocation formulae in general and the "technological approach" in particular. This approach assumes that a quantitative relationship exists between the different space users, the various space types and the amount of space required. The Sub-Committee, in undertaking a review of Building Blocks, accepted this approach at the outset as providing a valid method for determining space needs in the Ontario universities. It acknowledged, therefore, that in order to test the validity of the earlier recommendations, it would be necessary to re-examine each of the three components of the numeric approach:

a) the space classification scheme

b) the input measures

c) the space utilization factors

2.2 Space Classification Scheme

At about the same time that the Sub-Committee was created, a separate group was established to review the TLH space classification scheme and to consider the feasibility of creating a coding scheme to match the classifications adopted in Building Blocks Vol. 1.

The Sub-Committee on Space Coding held a series of meetings to review suggestions and criticisms of the proposed classification scheme and eventually obtained unanimous approval for the present set of definitions. It was necessary, of course, to obtain this agreement before proceeding with the collection of inventory data or the testing of space factors and in order to ensure the maximum amount of comparability in the survey data. A copy of the final report of the

Space Coding Committee is attached as Appendix 'B'. Following its approval by the Council of Ontario Universities in September 1975, the Ministry of Colleges and Universities indicated its support and accepted the new classification scheme as a satisfactory method of reporting space inventory information.

The space classification scheme as contained in Appendix 'C' consists of three sections. Section 1 is a series of explanatory notes, developed to assist in the application of the definitions. Section 2 consists of the definitions of the various categories of space and their sub-categories. Section 3 is a glossary developed by the Coding Sub-Committee to highlight those room types which could appear in more than one category and was intended as an aid in interpreting the intent of the definitions. The glossary has been well received and has proven to be a most useful addition to the documentation. It is hoped that it can be expanded from time to time to reflect new rulings or interpretations.

2.3 Input Measures

The input measures adopted in Building Blocks Vol. 1 were:

1. F.T.E. students (graduate and undergraduate)
2. Student non-lab contact hours
3. Undergraduate lab contact hours
4. F.T.E. graduates and full-time faculty (of "lab-oriented" disciplines only)
5. F.T.E. faculty
6. Equivalent volumes (library collection)
7. F.T.E. undergraduates
8. F.T.E. graduates

9. Full-time students
10. Gross area

After considerable study, the Sub-Committee concluded that the number of separate input measures could be reduced to five, although various combinations or subsets of these five would be used for different sub-categories of space. It was felt that this would greatly facilitate data collection and reporting, without sacrificing much of the reliability of the input measures as indicators of space needs.

The input measures finally adopted are:

1. F.T.E. undergraduates
2. F.T.E. graduates
3. F.T.E. faculty
4. Lab contact hours
5. Library volumes

Current definitions of the input measures are attached as Appendix 'D'. The reasons for adopting these particular measures and their application in the various space categories will be covered later in the discussion of each of the categories.

2.4 Space Factors

In undertaking to review the work of the earlier task forces, as published in Building Blocks Vol. 1, 2 & 3, the Sub-Committee acknowledged that the methodology which had been employed was valid. The Sub-Committee, having agreed upon a space classification scheme and suitable definitions for certain input measures, undertook its first space survey in 1974. Whereas only five institutions had been included in the test sample for Building Blocks, the

Sub-Committee included all fourteen provincially-supported universities in its survey. Responses were obtained from ten institutions. The data gathered were stored in a computer and several analyses were carried out, testing various input measures in a number of space categories to determine those that gave the best fit for derived space factors.

Where reported inventory data were considered to be unrepresentative at the particular time the survey was carried out or where a significant change in the inventory of a particular category was anticipated by an individual institution, such information was taken into consideration in arriving at derived space factors, i.e. actual space inventories divided by actual activity indicators or input measures. Such derived space factors served two purposes - a) an indication of the appropriateness of the input measure, based on the consistency of the results across all institutions and b) the approximate value of the space factor itself.

Although the space factors derived from the data had a strong influence on the final recommendations, the Sub-Committee tested the appropriateness of such space factors by an examination of first principles - minimum standards for work stations and acceptable rates of utilization, in those categories where such an appraisal is possible.

Following the publication of Building Blocks, a number of universities requested the Sub-Committee to re-study the categories for "instructional office" and "laboratories". In the former case it was considered desirable to create separate sub-categories for faculty offices and related support space, as opposed to graduate student offices, since a single category implied a fixed faculty/grad student ratio, which obviously was not the case. In the case of laboratories, it was considered necessary to adopt variable space factors to reflect the needs of different disciplines. The manner in which the Sub-Committee arrived at its revised recommendations will be discussed

in more detail subsequently in this report.

The Sub-Committee tested its preliminary findings in a second survey, which was conducted in 1976. Responses were obtained eventually from all sixteen institutions which now form the Ontario university system. The final results of the survey were published in December 1977, and permitted an assessment of the suitability of each space factor with regard to the total system and its "goodness of fit" for each institution.

At the request of the Ontario Council on University Affairs, a further examination of inventory data was conducted in Spring 1978. The data presented in Appendix 'E' describes the physical facilities available to the Ontario university system as of 1 November 1977 by comparison to the facilities required using the revised COU space standards.

3.0 THE SPACE CATEGORIES

3.1 Classrooms

It is not necessary to describe in detail the manner in which classroom utilization is measured and classroom standards established as this has been adequately done in many publications, including Building Blocks Vol. 1. Suffice it to say that a classroom space factor of 1.0 square foot per weekly student contact hour (sch) can be equated to an average station area of 15 square feet in a room that is scheduled 30 hours per week and is 50% occupied when in use. These 'standards' are expressed as follows:

$$\text{Space factor } 1.0 \text{ s. ft.}_2/\text{sch.} = \frac{15 \text{ s. ft. (station area)}}{30 \text{ hours (weekly sched. hrs.)} \times 0.5 \text{ (\% occupancy)}}$$

The standards in the denominator are a measure of the efficiency of utilization of the space and it can be seen that any combination of values resulting in a product of 15 will result in the same space factor (1.0) as the example shown, e.g., 25 hours per week at 60% occupancy or 20 hours per week at 75% occupancy..

The recommendations contained in Building Blocks Vol. 1 were 1.0 s. ft./sch. for the first 40,000 hours; 0.9 s. ft./sch. for the second 40,000 hours and 0.8 s. ft./sch. for all other contact hours.

In Building Blocks Vol. 1, the Task Force - Space and Utilization - raised two important considerations: i) should the room utilization rate, i.e., hours per week, be based on a fixed period of operation, e.g., 45 hours per week? ii) should a scale factor be built in to reflect the fact that efficiency of use improves with the size of the institution?

Room utilization is normally defined in one of two ways; (i) the number of hours per week that a room is used or (ii) the number of hours used is expressed as a percentage of the number available, i.e., 30 hours in a nominal 45 hour week would equal 66% utilization. The recommendation contained in Building Blocks is based on the latter concept.

The Sub-Committee was initially divided in its view of what constituted acceptable room utilization; while some members agreed that utilization should be expressed as a percentage, others felt that a standard based on a minimum number of hours per week should be set to ensure "an acceptable return on the investment in the facilities". Once the standard is set, it should be left to each individual institution to set its own hours of operation.

For example, if University A operates on a nominal 45 hour week and uses its classrooms on average 30 hours per week, it is achieving a desirable rate of utilization. If University B operates on a 70 hour week and uses its rooms 40 hours per week on average it could be argued that B's rate of utilization is less efficient, even though, in fact, it is using its facilities more than A.

It was important for the Sub-Committee to resolve this matter since it affected the definition of the input measure which would be applied to this category. When it was concluded that the most appropriate way in which these recommendations might be used, would be as the basis for a capital grants formula, it was agreed that the most equitable distribution of funds would result from adopting a minimum hour per week approach without constraining the timetable week. Accordingly, the Sub-Committee agreed that the factor implies a minimum number of hours per week and the input measure initially used included all weekly student contact hours regularly scheduled in credit courses.

On the subject of a scale factor, it was not evident in the data collected by the Sub-Committee that there are economies of scale in the utilization of classroom space. The utilization rates at two of the smallest universities were almost identical to two of the largest.

As a final step in developing a recommendation, the Sub-Committee examined data from the universities on the relationship between weekly contact hours (non-lab) and F.T.E. students. This partly related to the fact that some universities had expressed reservations concerning the use of contact hours as an input measure and others had experienced difficulty in collecting this data. The review indicated that there was a very close correspondence between the two measures and the Sub-Committee concluded that the weekly class loads were sufficiently similar to allow the use of F.T.E. students as a proxy for contact hours in determining the need for classroom space.

The data indicated an average weekly student course load of sixteen contact hours per week. To accommodate this activity the Sub-Committee recommended a space factor of 13 N.A.S.F./F.T.E. student. This factor is equivalent to 0.81 s. ft. per weekly student contact hour (non-lab). While this is substantially below the widely used planning standard of 1.0 s. ft./sch., it was apparent that a wide variety of Ontario Universities were able to achieve this value. The proposed factor implies room utilization in the order of 25-30 hours per week with seat occupancy being between 74% and 62% respectively.

3.2 Class Labs

The method of measuring the utilization in teaching laboratories is essentially the same as that described for classrooms, except for one main difference, i.e., the establishment of standards for station areas. Whereas in classrooms, it is possible to establish an average station area of 15 s. ft., to cover all types of lecture spaces — from large auditoria at possibly 10 s. ft./seat to seminar rooms of 20 s. ft./seat — in laboratories the station area varies according to the requirements of a particular programme. Station areas may range from 30 s. ft. per station

in some Social Sciences to 150 s. ft. or more in some branches of Engineering.

While the Task Force that developed Building Blocks recommended one factor for all class labs (excluding Agriculture Health Sciences) regardless of programme variances, the Sub-Committee felt it could expand upon their work and attempt to identify some of the differing requirements. The Sub-Committee's objective therefore was to examine the complete spectrum of departments requiring instructional lab space to determine whether the various requirements might be condensed into 5 or 6 groups, each with its own space factor.

Since it was intended that the same utilization rate (hours per week x percentage of seat occupancy) would be applied to all groups then the space factor would vary according to the station area.

The Sub-Committee's first task was to assemble the data collected from ten universities covering some 150 departments with class lab inventories and arrange them in a manner that would permit ready analysis.

The data was arranged into the eight categories shown in Appendix 'D' of Building Blocks Vol. 1 namely:

Education
Fine and Applied Arts
Humanities and Related
Social Sciences and Related
Agricultural and Biological Sciences (excluding Health Professions)
Engineering and Applied Sciences
Health Professions and Occupations
Mathematics and the Physical Sciences

An examination of each of these categories followed to determine whether the derived space factors (inventory ÷ lab contact hours) for

the individual departments formed a suitable group. Statistical tests were applied to measure the degree of correlation of the values and observations which had abnormally large deviations from the mean were discarded. It was clear from such reviews that the above categories did not provide the best groups for determining space requirements. For example, the factor for Mathematics was quite different from that for the Physical Sciences.

The next step then was to break these groups down into further sub-divisions to isolate programme areas with like requirements. The sub-divisions were:

Education	-	Education Physical Education
Fine & Applied Arts	-	Fine & Applied Arts
Humanities	-	Humanities
Social Sciences & Related	-	Div. I - Sociology, Anthropology, Political Science, Economics, Business Administration. Div. II - Geography, Urban & Regional Planning, Environmental Studies, Psychology.
Agriculture & Biological Sciences	-	Agriculture (incl. Forestry) Veterinary Medicine, Biological Sciences (plus nutrition), Household Sciences (excl. nutrition)
Engineering & Applied Sciences	-	Agriculture, Landscape Arch., Engineering
Health Professions & Occupations	-	Nursing All Other
Mathematics & Physical Sciences	-	Mathematics (incl. Comp. Science) Physical Sciences

The derived space factors for these sub-divisions were plotted and the graphical evidence suggested the existence of four distinct

groups. The original data was then sorted into these four groups and an average space factor for each group was established.

Group 1 at 3.0 s. ft. per lab contact hour
Group 2 at 5.0 s. ft. per lab contact hour
Group 3 at 6.5 s. ft. per lab contact hour
Group 4 at 8.5 s. ft. per lab contact hour

These values were tested on the newly formed groups in the second survey (1976) and some minor adjustments to the groups were made to achieve more consistent results. The final make-up of the groups is as shown in Figure 1. It should be remembered that the subject headings used are those taken from the taxonomy included in Appendix 'D' of Building Blocks Vol. 1, and taken mostly at the second level of detail.

As stated earlier, the space factor is a combination of station area and room utilization. If we assume a utilization rate of 18 hours per week of <u>scheduled</u> instruction at 75% seat occupancy, the station areas derived for each of the above groups are shown below.

Group 1	40
Group 2	68
Group 3	88
Group 4	115

These values must provide not only the work station in the lab but also the associated support areas such as stores, preparation rooms, etc. which may amount to one third of the work station area.

There was much discussion given to the suggested room utilization of 18 hours per week as it was thought it might be criticised as

Programme Classification Scheme

COU Space standards make use of programme or discipline groups in the generation of class labs, research and library space. The programme groups were developed originally from those listed in Appendix D of Volume I of Building Blocks. The programmes have been classified at the "second level" of detail as listed in that publication and it may be taken that these second levels are inclusive of the detailed programme names listed at the "third level".

The list of professional programmes used in the generation of library facilities are those of the operating grants formula.

Programme Related Space Factors

Programme/Discipline	Class Lab Factor	Class Lab Group	Research Factor	Research Group	Professional Programme
Education					
Physical and Health Education and Recreation	3.0	Z	75	D	
Other Education	5.0	Y	0	E	YES (except 4 year concurrent)
Fine & Applied Arts					
Theory, Ceramics, Drama, Theatre, Engraving, Industrial Design, Interior Design, Lithography, Music, Painting, Art, Printing, Sculpture	6.5	X	0	E	
Humanities & Related					
Classics, Classical and Dead Languages, Creative Writing, History, Mass Media Studies, Modern and Mediaeval Languages and Literature, Philosophy, Religious Studies, Translation and Interpretation	3.0	Z	0	E	
Library and Records Science	3.0	Z	75	D	YES
Social Sciences & Related					
Anthropology, Archaeology, Geography, Man/Environment Studies	5.0	Y	75	D	
Area Studies, Commerce, Business Administration, Economics, Political Science, Sociology, Military Studies, Linguistics	3.0	Z	0	E	
Law, Social Work	3.0	Z	0	E	YES
Psychology	5.0	Y	200	C	
Agriculture & Biological Science					
Agriculture	8.5	W	500	A	
Biochemistry, Biology, Biophysics, Botany, Zoology	5.0	Y	500	A	
Household Science & Related	5.0	Y	75	D	
Veterinary Medicine and Sciences	8.5	W	500	A	YES
Engineering & Applied Sciences					
Architecture, Landscape Architecture	6.5	X	0	E	
Engineering, Engineering Science	8.5	W	350	B	
Forestry	8.5	W	350	B	
Health Professions and Occupations					
Medicine	6.5	X	500	A	YES
Dentistry, Optometry	6.5	X	350	B	YES
Dental Hygiene, Medical Technology, Pharmacy, Public Health	6.5	X	350	B	
Nursing	3.0	Z	0	E	
Rehabilitation Medicine, Art as Applied to Medicine	6.5	X	0	E	
Clinical Science Depts.*	0	-	0	E	
Mathematics and Physical Sciences					
Actuarial Science, Applied Mathematics (except Computer Science), Mathematical Statistics, Mathematics	3.0	Z	0	E	
Computer Science	3.0	Z	0	E	
Chemistry, Geology and related, Metallurgy, Material Science, Meteorology, Oceonography, Physics	6.5	X	500	A	

* Do not report corresponding inventory

being too low, particularly in light of the recommendations contained in an earlier Ontario Universities Physical Resources Survey conducted by Taylor, Lieberfeld and Heldman (1972). However, the committee was satisfied that this is a reasonable figure and cites the following reasons:

1) Room use is not limited to the 18 hours per week of regularly scheduled instruction. In addition, the facilities are used for unscheduled activity by groups or individuals for study or experimentation related to course work and assignments.

2) Generally published planning standards for other jurisdictions usually exceed their actual utilization and one reason may be constraints in building the timetable i.e., the difficulty of scheduling 3 hour slots for lab sessions without creating conflicts for the lecture schedule.

3) Eighteen hours per week is suggested as an average for all programs and all levels of instruction. It is recognised that some general purpose labs for 1st or 2nd year instruction will be used much more than the average, but some highly specialized facilities for upper year students are used less.

3.3 Research

Since Building Blocks already contains an excellent review of the difficulties associated with establishing space standards for research, it is not necessary to cover the same ground again. Almost everyone will agree that this is the most difficult category of space to fit into the quantitative approach to space allocation.

The Sub-Committee saw as its principal task the need to identify groups of disciplines with similar space requirements for research and then to attempt to find suitable values for each group.

As with the earlier study described in Building Blocks Vol. 1, an attempt was made to find a relationship between the inventory of

space and the principal users. The principal users were taken to be F.T.E. faculty and F.T.E. graduate students; however, it was concluded that they need not necessarily be given equal weight. In fact, several tests were run, assigning different weights to graduate students, e.g. 0%, 20%, 50%, and 100% of the faculty value. The results indicated that the best results were obtained when graduate students were assigned a weight either equal to or half that assigned to faculty. The final choice of input measure, i.e., F.T.E. faculty + 1/2 x F.T.E. grads., was made because it gave a slightly better fit in the categories which had the largest space factor and accounted for most of the inventory viz. Science and Engineering.

For each of the departments reported by each institution, a space factor was derived by dividing the reported inventory by input measure selected above. The results were plotted for some 120 departments and these were divided in six groups. The assigned values were tested in the second survey and after some further analysis it was finally decided to reduce the number of groups to five, as follows:

Group A	500	N.A.S.F./researcher
Group B	350	"
Group C	200	"
Group D	75	"
Group E	0	"

Group E was established only to permit reconciliation of the total inventory. Where some small amount of research had been reported for several of the disciplines in Group E, these had been added to the inventories reported in the class lab category and therefore had an impact on the space factors established there.

The Sub-Committee was satisfied that the total amount of research space being generated by this method was similar to that generated by the Task Force in Vol. 1 of Building Blocks but, of course, the distribution was different.

Subsequent survey data suggests that perhaps the distribution is not as good as it might be in terms of the fit amongst all institutions. Further studies might suggest a change in the definition of the input measure. However it must be emphasised that at this stage it is only the distribution which is to be improved and not the total amount of space generated. Therefore if the input measure were to be increased, say by assigning full value to grads instead of 50%, then the space factors would be reduced and the content of each group might vary from that shown in Figure 1.

It has been suggested that post-doctoral fellows should be included in the input measure for research space and data is now being gathered to determine how significant this component is, and in what fashion it can be accommodated.

The Sub-Committee will likely undertake further studies in this category in an attempt to obtain the most equitable distribution for this type of space and also to respond to comments and suggestions received from individual institutions.

3.4 Office

3.4.1 Academic Office

The Recommendation contained in Building Blocks Vol. 1 was 243 N.A.S.F. per F.T.E. faculty. This was intended to cover all "instructional and related" office space such as faculty offices, graduate student offices, office space for academic support staff and departmental office space, conference rooms, file rooms, etc.

The Sub-Committee received a number of requests to review this category, mainly for two reasons. First, it was considered preferable to separate graduate student offices from the other academic office categories so that a constant faculty/graduate student ratio was not implied for all institutions. Second, it was felt that the proposed factor did not generate enough space.

It was recognised, in this category, perhaps more than any other, that the development of a planning standard is quite different from developing a space factor which will provide an equitable distribution of capital resources. While 125 s. ft. might be considered adequate for a typical single office, many older buildings in the Ontario system had been built with larger offices, spaces that are too generous for one person but not big enough for two. Since this had a significant impact on the inventories of a number of institutions, the Committee felt that this should be recognised in the development of a new standard.

Further it is recognized that offices for chairmen and senior professors are larger than average while junior faculty are usually assigned to smaller offices or sometimes share offices.

Three institutions represented on the Committee undertook to provide a breakdown of the inventory reported for this category. The range of results obtained are shown below:

	Area/F.T.E. Faculty
Individual faculty offices	140 - 175
Professional support staff (usual ratio 1:9 or 10)	15 - 25
Sec. & Clerical support (usual ratio 1:4 or 5)	30 - 40
Conf. & other office services space	5 - 40
	190 - 280

The Sub-Committee recommended an allocation of 210 N.A.S.F. per F.T.E. faculty to cover all office needs in academic departments (except graduate student space). An additional allowance of 40 s. ft. per F.T.E. graduate student was recommended.

3.4.2 Administrative Office

The surveys conducted by the Sub-Committee confirmed the recommendations made earlier in Building Blocks. The only change recommended resulted from rounding and the new space factor is therefore 9.0 s. ft. per F.T.E. student.

3.5 Library

In reviewing this category, the Sub-Committee met with representatives of the Ontario Council of University Librarians and examined in some detail the space standards implicit in the Building Blocks recommendations. The category is divided in three sections as before.

3.5.1 Stack Space

The recommendations contained in Building Blocks Vo. 1 were:

	S.F./Eq. Vol.
First 150,000 vols.	0.10
Second 150,000 "	0.09
Next 300,000 "	0.08
Remaining volumes	0.07

These factors provide for a range of 10 to 14 volumes per s. ft. It was the opinion of the Sub-Committee that these standards were too generous given the rules for measuring space that have been adopted in Ontario (as in Appendix B of this report). In other words, these values provide for a significant amount of circulation space which is not considered assignable. Necessary access and

escape routes should be identified on floor plans and classified as non-assignable circulation space to meet the requirements of the Ontario Fire Regulations.

An examination of some typical stack areas which existed in a few of the libraries represented on the Sub-Committee indicated that a typical shelf unit (3' wide x 7 1/2' high) occupied approximately eight square feet allowing for variations in layout. The capacity of a standard shelf unit is usually taken to be 125 volumes and by observation it was determined that this standard allows adequate spare capacity to accommodate expansion of the collection over several years. These standards then suggest an average of 15 volumes per square foot. The Sub-Committee therefore recommended a change to the factors for stack space as follows:

First 300,000 vols.	0.08 s. ft./vol.
Next 300,000 vols.	0.07 s. ft./vol.
Remainder	0.06 s. ft./vol.

The Sub-Committee did not attempt any review of the conversion factors for equivalent volumes contained on p. 75 of Building Blocks Vol. 1 although it was requested to provide a factor for atlases. The factor agreed upon for atlases was 45 items equal to 125 equivalent volumes.

3.5.2 Study Space

The earlier recommendations were based on a space standard of 25 square feet for a study carrel with sufficient stations to accommodate 22% of undergraduates and 40% of graduate students. This resulted in space factors of 5.5 and 10 s. ft. respectively. The Sub-Committee applied the same reasoning with respect to circulation space as was discussed above and by actual measurements confirmed that a typical study carrel required only twenty square feet.

The librarians who met with the Sub-Committee recommended that the number of stations for undergraduate students should be increased to 25%. In addition, they pointed out that extra provisions needed to be made for students in the professional programs where study habits require a larger carrel. Accordingly, the following standards were recommended:

Undergraduates	20 s. ft. each for 25% of population resulting in a factor of 5.0 s. ft./F.T.E.
Graduates	20 s. ft. each for 40% of population resulting in a factor of 8.0 s. ft./F.T.E.
Professional Schools	30 s. ft. each for 40% of population resulting in a factor of 12 s. ft./F.T.E.

3.5.3 Service Space

As discussed in Vol. 1 of Building Blocks service space may be generated either through an allowance per F.T.E. student or as a percentage of stack and/or study space. The Sub-Committee favoured the latter approach recognising that in periods of stable or even declining enrolment, collections will likely continue to increase. A factor of 25% of the area generated above for stack and study space was recommended for this sub-category.

In conclusion, the Sub-Committee recognized some of the many changes occurring in library operations that are likely to affect space needs in university libraries in years to come, such things as increasing use of microfilming, automated circulation systems, regional cooperation in culling and/or sharing collections and the use of inexpensive space to house the less active parts of the collection in high-density closed-stack arrangements. The introduction of such measures will require a review of library space factors.

3.6 Athletic Facilities

The Sub-Committee's recommendation was 20,000 N.A.S.F. + 8 N.A.S.F./F.T.E. student. Although the total amount of space generated by this recommendation is very similar to that produced by the earlier Building Blocks proposal, the Sub-Committee concluded that a sliding scale approach was necessary in order to ensure that the smaller institutions would generate sufficient space to cover a building of 40,000 to 50,000 N.A.S.F. It was felt that this is likely to be the smallest unit that it is feasible to build, if it is to contain a pool, gymnasium, training rooms, locker rooms and showers.

Based on 1975/76 enrolment data the N.A.S.F./F.T.E. values ranged from 8.75 at the largest institution to 16.27 at the smallest, with an overall average of 10.2.

In order to determine whether these values were reasonable, a member of the Sub-Committee conducted a survey of 39 institutions in the U.S. and Canada (excluding Ontario). Replies were received from 4 Canadian and 19 U.S. universities, indicating a range of 5.08 to 39.47 N.A.S.F./F.T.E. with an overall average of 13.76 and a median value of 12.52. It was notable that the Canadian institutions were bunched at the lower end with values between 6.2 and 7.9 N.A.S.F./F.T.E.

The inventories reported by the Ontario institutions represented an average of 8.0 N.A.S.F./F.T.E. but some universities reported plans to expand their facilities in this category which would ultimately raise the value at those institutions closer to the recommended space factor.

3.7 General Use

This group includes food services; merchandising, bookstore etc.; commons and student activity; assembly and exhibition. These four categories were dealt with separately in Building Blocks Vol. 1.

The Sub-Committee observed in the survey data collected that a greater consistency in results was obtained when the four categories were grouped than when each was taken separately. Apparently the universities were able to trade off the need for additional facilities in one area with those in a related category. However, with the adoption of a specific standard for each category there was the possibility that an undesirable steering effect was being introduced considering the relatively small value of the individual space factors. This might tend to constrain the universities in meeting their needs in differing ways.

Accordingly, a range of values was suggested for each of the categories, which reflect the use of space in most of the Ontario universities. The overall control is expressed in the space factor recommended for the group viz. 17.5 N.A.S.F./F.T.E. student. The suggested range of values are:

	N.A.S.F./F.T.E
Food services	5.6 - 7.7
Merchandising, bookstore etc.	1.2 - 2.0
Commons & student activity	5.8 - 7.0
Assembly & exhibition	1.6 - 3.9

3.8 Special Use & Support

This group includes audio visual, health services, maintenance shops, computer facilities, central stores and shops. As with the previous group, the Sub-Committee felt it was desirable to establish an overall space standard for the group and indicate only a range of values for each individual space type.

With respect to plant maintenance space, the Sub-Committee recommended two changes to the approach adopted in Building Blocks Vol. 1. First, it advocated the exclusion of central utility space from this category as recommended by the Space Coding Sub-Committee. Such space is considered non-assignable and therefore should not be included in any space formula designed to generate assignable space. Second, in an attempt to reduce the number of input measures required and in expectation of eventually moving to a "space/weighted student" formula, this category was assigned a similar input measure to the other support facilities viz. F.T.E. students. The suggested range of values are:

	N.A.S.F./F.T.E.
Audio-visual	0.5 - 1.0
Health services	0.3 - 0.5
Maintenance shops	1.3 - 3.5
Computers, stores & shops	1.5 - 3.5

The overall space factor was recommended to be 6.0 N.A.S.F./F.T.E. student.

4.0 SUMMARY

The space factors presented in this report constitute a space allocation formula for fifteen types of assignable space and covering all academic programmes now in effect in Ontario. There are some notable exceptions which remain outside the formula, such as the Veterinary Medicine programme at Guelph where special animal facilities are treated as unique requirements. Also, the clinical areas of the Health Sciences are not covered by any space standards.

The space factors are really the result of three separate sample surveys covering a period of five years. The first survey covering the 1971-72 academic year was undertaken by the original Task Force with the results being published in Building Blocks Vol. 1. The second and third surveys, conducted by the present Sub-Committee measured conditions in 1973-74 and 1975-76.

It was during this five year period that a moratorium on capital construction was imposed by the Ministry of Colleges and Universities, notwithstanding continued increases in enrolments. The Sub-Committee is satisfied that the proposed standards provide a suitable means of determining space requirements for the Ontario Universities and are sufficiently sensitive to reflect the needs of different programme and enrolment mixes. The standards have also demonstrated the change which occurred during the early seventies when the total University inventory moved from one of slight surplus to a position of overall deficit.

In responding to the comments and suggestions received from various institutions, the Sub-Committee has recommended the following changes to Building Blocks standards.

1. Classrooms - the space factor generates space per student instead of space per contact hour. Because of the similarity in course loads amongst the institutions, student count was considered to be an equally reliable and more readily available, input measure.

2. Instructional Labs - a range of space factors were developed to reflect the different needs of various programs.

3. Research Labs - (Faculty and Graduate Student Labs) - a range of factors were developed for broad discipline groupings.

4. Academic Office - separate factors were developed for faculty and graduate office space.

5. Library - overall factors were reduced with service space generated as a percentage of Stack and Study rather than by student count.

6. General Use - an aggregated factor was established to represent the four categories of Food Services (cat.7), Bookstore, Merchandising (cat.8), Commons and Student Activity (cat.14) and Assembly and Exhibition (cat.15). A range of values are provided for each individual category.

7. Special Use - as above, categories of Audio-Visual (cat.11), Health Services (cat.13), Plant Maintenance (cat.9) and Computer, Stores and Shops (cat.12) have been combined under one overall factor with suggested ranges for each individual category.

The revised COU space standards are displayed in Figure 2.

FIGURE 2

COU SPACE STANDARDS

1.	Classrooms	13.0 s.f./F.T.E. student
2.	Classlabs - Group W*	8.5 s.f./weekly lab contact hour
	" X	6.5 s.f./ " " " "
	" Y	5.0 s.f./ " " " "
	" Z	3.0 s.f./ " " " "
3.	Research - Group A*	500 s.f./Researcher (i.e. F.T.E. Faculty + ½ Grads.)
	" B	350 s.f./ "
	" C	200 s.f./ "
	" D	75 s.f./ "
	" E	0 s.f./ "
4.	Academic Office	210 s.f./F.T.E. Faculty
		40 s.f./F.T.E. Grads
5.	Administrative Office	9.0 s.f./F.T.E. student
6.	Library - Stack	0.08 s.f./Equiv. Vol. for 0-300,000 Vols.
		0.07 s.f./ " " " 300,000-600,000 Vols
		0.06 s.f./ " " " all other Vols.
	- Study	5.0 s.f./F.T.E. Undergraduate
		12.0 s.f./ " " (in Professional Programmes)*
		8.0 s.f./ " Graduate
	- Service	0.25 x (Stack + Study)
7.	Athletics	20,000 s.f. + 8.0 s.f./F.T.E. student
8.	General Use (Food Services, Bookstore, Commons, Assembly and Exhib.)	17.5 s.f./F.T.E. student
9.	Special Use (A/V, Health Service, Maint., Computer, Stores.)	6.0 s.f./F.T.E. student

*See Programme Classification Scheme (p. 15)

APPENDIX A

APPENDIX 'A'

MEMBERSHIP OF THE SUB-COMMITTEE ON REVISIONS
TO BUILDING BLOCKS

1973 - 1975: Mr. A. E. Lappin (University of Waterloo) Chairman
Mr. G. B. Bailey (University of Toronto)
Mr. H. Schulz (University of Western Ontario)
Mr. P. Watts (Queen's University)

also as Resource Persons

1973 Mr. John Long (COU)
1974/5 Mr. Bryan Smith (University of Waterloo)

1976 - 1978 Mr. A. E. Lappin (University of Waterloo) Chairman
Mr. Ross Dawson (York University)
Mr. George Ross (Trent University)
Mr. Bryan Smith (University of Guelph)

and as Observer Mr. Schuyler Jones (University of Toronto)

APPENDIX B

APPENDIX 'B'

REPORT OF THE SUB-COMMITTEE, SPACE CODING

to the

COMMITTEE ON CAPITAL FINANCING

Our committee has now completed the tasks it was assigned in connection with the classification and coding of university space and submit herewith a report of our work and the recommendations that arose from this work.

One task was to determine the level of detail the Ministry of Colleges and Universities wants to maintain in its file of university space and to see if this level of detail could be accommodated by the classification scheme of the Building Blocks series, either in its existing form or with modifications. Only minor changes in the existing scheme were found to be necessary, and they were mainly in the division of space within categories. This was an important consideration for two reasons. First, it meant that the same classification of assignable space would serve for the development and use of a capital space formula and for responding to requests for information from MCU. Secondly, it meant that universities that had used the existing classification scheme to develop their space files would have to make few if any changes in their files.

Universities that had used a different method of classifying space do not need to change to the amended classification scheme as long as they are able to respond to requests from MCU on the same basis and at the same level of detail as other universities.

The other task was to review the existing methods of defining and identifying space to remove ambiguities and clarify definitions so that space information could be reported to MCU in a uniform manner. This became essentially a matter of elaborating definitions for types of space that may appear in more than one category.

The amended classification scheme is attached as Appendix 1*. The changes we have made and the recommendations that carry beyond the amended classification scheme are set forth in the following paragraphs.

Level of Detail for Assignable Space

The original space classification scheme of the Building Blocks identifies fifteen categories of assignable space. It is expected that this will be the usual level of detail for reporting assignable space information to MCU. However, there may be requests, upon occasion, for a finer division of space within certain categories. To prepare for this possibility, we have identified subcategories where appropriate.

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*Note: In the present report, Space Classification Scheme is attached as Appendix C.

As an example, Classroom Facilities, Catergory 1, identifies three subcategories -- tiered classrooms, non-tiered classrooms, and classroom service space.

There is an outside possibility that a third level of detail may be requested for a particular type of space within subcatgories. An example would be a request for the total amount of lounge space on campus. We do not believe that any special arrangements need to be made in the classification scheme to identify space at this level. Universities will most likely keep records of this kind of information for internal purposes.

Level of Detail for Non-Assignable Space

The original non-assignable space - Category 16 - covered a number of types of space that remains unchanged in the amended classification scheme. However, the treatment of utility space in the original scheme came under review by our committee.

Utility facilities located in the only building they serve were classified as non-assignable while those facilities centrally located and serving more than one building were classified as assignable and placed in Catgory 9. We are of the opinion that all utility space should be placed in Category 16 - non-assignable space - for the following reasons. First, this separation may produce inconsistent space data since it is unlikely the same proportion of assignable space is served by a central utility plant at all universities. Secondly, the separation could encourage universities to provide separate utility services for all new buildings to reduce their quota of assignable space. Thirdly, central utility plants at many universities also serve non-assibnable or non-formula space such as residences.

For these reasons we have moved central utility to Category 16 where it is shown as a separate subcategory.

Level of Detail for Non-Formula Space

The original classification scheme placed all non-formula space into Category 17. It is expected that non-formula space will need to be reported to MCU in some detail. In anticipation of such a request we have used Category 17 for residential space only, created a new category 18 for non-formula animal space, and a new category 19 for other non-formula space. Subcategories are shown for each of these categories. The subcategories in Category 17 identify two kinds of residential space and in Category 18, two kinds of animal space. Each subcategory in Category 19 identifies a unique type of space.

Z Formula Space*

The inventory of universities with programmes in the health sciences may include space that is occupied by hospital services or by clinical staff usually located in hospitals. Some if not all of this space is non-capital formula space. To the extent that it is outside the proposed capital formula it comes under the Z formula. It will need to be identified within the space file of the university so that, upon request, it can be reported to MCU. Further it will need to be identified by its use within the range of categories 1 through 15.

We discussed the question of identifying this space within the framework of the classification scheme and concluded that it fell outside the normal pattern. For example, it may be included with assignable space in Categories 1 - 15 although it is non-formula space and would therefore need to be identified in such a way that it could be extracted and reported separately. Or it may be placed in a separate category - for example Category 20 - in which case its subcategories would correspond, where applicable to categories 1 - 15.

Either of these methods would probably be satisfactory, and there may be others that would be equally satisfactory.

For these reasons we concluded that we should stop short of suggesting one method and leave the choice of method to the individual universities.

Definitions of Space Within Categories

One of the most time-consuming parts of our work was the writing of definitions of the types of space for each category and subcategory. Our objective was to write clear but concise definitions that could be followed with a minimum of uncertainty or confusion and that would facilitate the reporting of space information to MCU in a consistent manner. The methods we adopted to move towards this objective are as follows:

1. We adopted a three-part system of defining each category. The first part describes the nature of the space that falls within the category. The second part identifies one or more subcategories and describes the types of space that fall within each subcategory. The third part identifies types of space that should not appear in the category. Where the proper location of this excluded space was known, we used the reference "See Category ...".

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*This formula, intended to identify medical clinical teaching and research space requirements, was never implemented. The term is now occasionally used as a convenient expression for this type of facility. See page 42 and 64 for further discussion.

2. We started building a glossary in which the appropriate locations for types of space that could appear in more than one category are defined.

When we had completed the first draft of the amended classification scheme and had made a modest start on the glossary, we sent a copy of them to each Ontario University for examination and comments. We received favourable replies from all universities concerning the general form of the documents. We also received a number of suggestions for improving our definitions and for additional types of space to be defined in the glossary.

We reviewed all of these suggestions and found that they were most helpful in the preparation of the final document.

One change we made in the final document should be mentioned. In the draft that was sent to the universities we had marked each type of space that was defined in the glossary with an asterisk wherever it appeared in the descriptions of space categories. We decided to eliminate the asterisks in the final document. To retain these tends to defeat one purpose of the glossary, which is to define in one place the conditions under which a type of space should be placed in each of two or more categories. Also, each user of the classification scheme might expect to see every item in the glossary also recorded in the description of the categories. Then, every time an item was added to the glossary in the future, the item would need to be recorded, with an asterisk beside it, in each category in which it belongs. This would also tend to defeat our objective to write concise descriptions for the categories.

Our recommendation for the future use of the glossary is referred to later in the report.

T.L.H. Coding System

A survey carried out before our meetings began showed that only five of the Ontario universities use the TLH system as published. Seven use it after having modified it to suit their needs by such steps as deleting numbers, changing definitions, and adding new numbers. Two use coding systems of their own design.

Two points of concern to our committee could be deduced from the results of this survey. One was that among the universities, there are significant differences in the coding methods used. The other was that by now, each university has developed a coding method that identifies space satisfactorily for all its needs.

This brought into question the importance of a common code numbering system. Although it might be desirable, it is not essential. It really does not matter what number is used to identify offices for teaching and

research faculty, for example, as long as the definitions of the classification scheme clearly places this type of space in Category 4, Subcategory 4.2.1.

In short, the thing that promotes uniformity in the classification of space is the definitions. We believe that the descriptions of the amended classification scheme along with the definitions of the accompanying glossary provide the means of achieving a high degree of uniformity. Until there is a demonstrated need to develop a common coding system, we believe each university should continue to use the system it has developed for its own use.

Other Requirements for Reporting to MCU

The guidelines provided by MCU for reporting space information included two items not mentioned to this point.

The first concerns university space for which information may be requested. It is to include all space owned or rented by the university except houses rented or used for domestic purposes and income or other property not directly serving the university population or supporting university programmes.

This definition is also recorded on the front page of the amended classification scheme in Appendix 1.

The second item concerns the source of funds for the construction or acquisition of buildings to be included under the first item, and for additions to those buildings. The source of funds may be identified as:

- the federal government
- the provincial government
- university funds
- funds from other sources

All buildings in the allocation inventory of the universities to be regarded as funded by the provincial government.

This information relates only marginally to the classification of space. That is, the area of a building would be reported as a single figure. It would not have to be broken down into categories of assignable and non-assignable space.

Summary & Recommendations for Dealing with Changes

Our first meeting was held on May 28, 1973 and we have met twelve times since this. At our first meeting Mr. S.T. Orlowski of the Ministry of Colleges and Universities discussed the type of space information and the level of detail of that information that the Ministry intends to maintain in

its files. Subsequent meetings were attended by Mr. J. M. Plumb of MCU who provided valuable assistance in the development of the amended classification scheme.

Mr. Hans J. Schulz, chairman of the committee became seriously ill during the fall of 1973 and has been unable to attend meetings since then. His presence has been greatly missed.

The names of the members of the committee and their affiliations are recorded in Appendix 11.

Our work is now completed. We have reviewed the system of classifying and coding space of the Building Blocks and amended them as necessary to meet the requirements for reporting space information to MCU. We have prepared a document that describes the categories of space within the classification scheme, and a companion document that defines the classification of various types of space in more detail.

We have no doubt that from time to time these documents will need to be added to or amended. Since the categories of assignable space in the amended classification scheme are the base on which the space standards of the proposed capital formula have been developed, changes of whatever nature in the classification scheme should be considered in the light of their possible effect on those standards. We recommend, therefore, that the task of dealing with changes and answering questions concerning the classification of space that may arise in the future be assigned to the Standing Sub-Committee on Space Standards. We recommend further that answers to questions about the classification of types of space be developed in a form suitable for inclusion in the glossary and transmitted to each Ontario University.

APPENDIX II

MEMBERS OF THE SUB-COMMITTEE ON SPACE CODING

Hans J. Schulz (chairman)*	University of Western Ontario
G.B. Bailey (acting chairman)	University of Toronto
J.T. Lloyd-Jones	University of Ottawa
Bryan Smith	University of Waterloo
Peter Watts	Queen's University
George Zylawy	University of Guelph
C.R. Sivertson (until January 1974)	Ryerson Polytechnical Institute
G. Hume (after January 1, 1974)	Ryerson Polytechnical Institute
J.M. Plumb	Capital Support Branch, Ministry of Colleges & Universities

* Mr. Schulz became seriously ill in the fall of 1973 and was unable to attend subsequent meetings of the Committee.

APPENDIX C

APPENDIX 'C'

SPACE CLASSIFICATION SCHEME

Section 1 - Notes

The space classification scheme is presented in three sections. This section defines the nature and scope of the inventory that is to be included in the reporting and addresses several recurring questions concerning space inventory and classification.

Categories

Section 2 is the classification scheme itself. It includes 19 categories of space type which are accompanied by definitions aimed at the main intent of the classification. The first 15 of these categories identify the more usual kinds of usable or assignable spaces in an institution for which space standards could normally be developed, while categories 16 through 19 classify non-assignable spaces or highly specialized facilities generally of a unique nature. The definitions of the space types are meant to be mutually exclusive.

Subcategories

Each of these 19 initial categories is further classified into one or more subcategories. These subcategories are identified merely by their names and by examples of specific room types that would likely be included. The examples of room types are neither exhaustive nor mutually exclusive, but are instead intended to characterize the nature of the subcategory. It should be emphasized that all rooms classified into a subcategory must meet the definition of the main category itself.

Exclusions

A specific set of Room Types Excluded has been specified for most categories of space to assist in the immediate identification of classification problems. For detailed commentary on individual rooms it is recommended that the glossary be consulted.

Glossary

Section 3 of the classification scheme is the glossary. This is intended to be a flexible document which will record detailed decisions and trade-offs that have been made in space classification problems. In some cases use of the glossary is probably the only means by which a room could be classified (e.g. see "Computing Facilities"). The glossary therefore, forms an integral part of the classification scheme.

Reporting Format

An attachment is included with the classification scheme, although it is not really a part of it. It is a suggested format for reporting the inventory. Because of its form it is also a handy list of the category and subcategory names. Of course, any university that has sophisticated enough computer systems to produce the report will automatically find this attachment to be redundant.

Scope of Inventory

The inventory of space that is to be reported is to include all spaces defined in the classification scheme regardless of whether the space is owned, leased or rented by the university or others, and regardless of the source of funds used for its construction or acquisition and regardless of the age or condition of the space. By this definition, the space reported may include facilities not owned by the university on one hand, or may exclude owned facilities on the other. Owned facilities which are excluded for example, could be houses used for domestic purposes or income and other properties which only incidentally serve the university population. In the broadest terms, the space to be reported should be that necessary and useful to the university in supporting the institution and its faculty, staff and students in their mission of instruction, research and public service.

Coding

The classification scheme in the strictest sense is not a coding scheme in that no information about the relationships between the categories is implied or can be obtained from the category numbers. It would appear that broad agreement on just what these relationships might be cannot be reached. In the absence of further direction, several universities have used the present list of numbers as a self-contained coding structure or have used the list as the basis for the development of a detailed use-coding scheme. As unsystematic as this may be, it at least assures a direct map into any future code structure which may be used for inter-universtiy reporting, although of course, any set of one-to-one identifiers would do. In any event, it is expected that government reporting or inter-university comparison of space types will be conducted at the category or subcategory levels of detail. (This of course does not preclude the possibility of reporting by department and space type say, or by source of funds and space type.) It is further recognized that this classification scheme will not normally be detailed

enough for internal use and the universities may differ widely on the development of a third level of space classification. It is expected that any handling of data at this third level will be on an ad-hoc basis and that no large systematic reporting or handling of data need be included for. Alternatively, the universities are encouraged to develop automatic means for reporting at the subcategory level, with and without subtotaling by department, building, and possibly source of funds.

Pro-Rationing

One of the primary purposes of the classification scheme was to distinguish between spaces that were put to differing uses by means of adequate definitions or, where these judgements were difficult to make, to develop entire new categories to describe those which fell somewhere in between. Pro-rationing should not, in general, be required to distinguish between differing uses or even to describe multiple use facilities. Whole classifications should almost always be attempted on the basis of the closest definition. Of course, minimizing the pro-rationing of rooms on the basis of use will not necessarily extend to the control, function or funding of space.

Source of Funds

As previously mentioned, all facilities that can be classified by the definitions are to be included regardless of source of funds. While source of funds is an important component in the description of the capital assets of an institution and, in particular, special provisions need to be made to encourage private funding of universities, it was felt that these matters lie outside the development of a space classification scheme. It was expected that each university would retain suitable records of its funding sources without direction.

Measurement of Space

Exacting definitions of space classifications were reviewed on pages 23 through 27 of Volume 1 of Building Blocks and comprise an excellent discussion of the major space types. Further specification of the methodology of space measurement hardly seems appropriate in such a practiced jurisdiction as Ontario. There are two areas however, in which recurring difficulty in the classification of space are apparent. The first concerns the classification of Inactive space.

Broadly speaking, the intent of the classification scheme is to classify inactive spaces as either assignable or unassignable. Inactive Assignable spaces are those which are deemed to be available

for immediate occupancy but which had not been assigned to individuals or groups at the time of the survey. These spaces then, are unassigned (to individuals or groups) but are assignable (available for immediate use). Also included in this group would be larger areas constructed, finished and held for future use, or areas removed from active use because of declining needs or lack of operating funds, for example, an entire floor of a building which has been locked and kept under minimum heating. Such spaces, even though they may require some start-up time, should be reported in this sub-category. Further reporting in this subcategory could be spaces of small or moderate size which were unavailable for use for periods of time of up to one-half of an academic term, due to regular maintenance, refurbishing or minor renovations and for which the inclusion of the space either here(or for that matter in Categories 1 to 15), would not normally present a distortion of the needs of the institution. Because no definition of this type of space is included in the present Classification Scheme, it is tentatively suggested that this space be reported as Sub-Category 19.5, Inactive Assignable, as noted on the reporting form.

The classification Inactive Unassignable should be then reserved for those spaces which would require long lead times and extensive work to make them available for occupancy. Such spaces would include those left unfinished at the time of construction or those undergoing renovations or major repairs requiring large areas of a building to be out of service for many months. In the case of very extensive renovations, it may in fact be more convenient to consider the building as "under construction" and simply not report the space at all. Again, because no definition is currently in the Classification Scheme for this type of space, it is suggested that any facilities be reported under Sub-Category 16.3, Inactive Unassignable.

The second difficult area of classification concerns the measurement of Circulation Area. According to the adopted definition on page 26 of Building Blocks, circulation area is that which is required for physical access to some subdivision of space — whether or not enclosed by partitions. With increased use of office landscaped designs and the particular problems of measuring library space, there appears to be a need for some commentary in order that uniformity of measurement is achieved.

For such large unobstructed areas we should note that:

a) Code requirements must me met. The Ontario Fire Marshal's Office requires that floor plans of office landscaped areas indicate fire corridors, which must be left unobstructed. In addition, in some work areas subject to congestion, for example, large machine shops or warehousing areas, corridor demarkations may be painted on the floor to indicate fire escape routes or areas that must be left unobstructed for safety reasons. These should be measured as Circulation Area.

b) The divisions of space for which general access is required, as referred to in the Building Blocks definition, should certainly be construed to be those at the Category level of detail, and in most cases, the divisions should be made at the Subcategory level. In other words, routes necessary for general access to blocks of space which would be inventoried within a single subcategory, or corridor spaces which separate areas falling into separate subcategories, should be measured as Circulation Area.

c) Single rooms or work areas, plus integral support areas which serve a single purpose, for example: a gymnasium; a block of book stacks; spectator seating areas; or accounts payable offices plus file areas; should not include any spaces within them as Circulation Area. It is general access to the area which is the determinent, not routine movements within those spaces. Once again, an interpretive judgement will often need to be made on this space type.

Age and Quality

The age or condition of space is not be be held as a consideration when reporting space in the classification scheme. While it is agreed that such considerations may have considerable impact on the efficiency or useability of facilities, it was felt that these effects lie outside the purposes of the space classification scheme. First, the definitions are intended to classify space as used or as available for use. Second, no satisfactory methodology has yet been devised by which to judge the quality of space. Third, it is almost certain that such a judgement would be at least partly predicated on the actual inventory of the facility. It is recognized that some square feet are not equivalent to others, but the means for making these assessments must be separate from those used to inventory and classify the spaces.

Hospital Facilities

The inventory of universities with programs in the health sciences may include spaces which are used as hospitals or may house clinical staff usually located in hospitals. Much but not all of the funding for these facilities was provided under the Health Resources Development Plan and is often referred to as Z-formula space. While it is necessary that each university maintain an inventory of these facilities, no specific method of reporting has been identified in this report. Probably it is preferable that the universities inventory the clinical science spaces in each of the appropriate categories 1 through 15 for which the spaces meet the definitions and include a new category (20 say) for those health care areas for which no definition is included. (These would likely be patient bedrooms and bathrooms, nurses' stations, surgery, treatment rooms, waiting rooms, and service and supply areas.) In any event, the point to be emphasized here is that these facilities are not to be included in regular reporting to the extent that the corresponding input measures to the proposed space formula are not reported. The intent, of course, is to ensure correspondence of reporting and any of several methods of recording the spaces would be suitable. As is usual with iron-clad rules such as the one above however, there is one known exception. For convenience, the definition of FTE Undergraduates has been drawn up in such a way that it will include interns and residents. It is felt that the distortion of generated space is not serious.

SPACE CLASSIFICATION SCHEME

Section 2 - Definitions

1. CLASSROOM FACILITIES

Definition

A room generally used for scheduled teaching purposes, not requiring special equipment of a kind that makes the room unsuitable for classroom instruction, and rooms directly serving such facilities.

Subcategories

1.1 Tiered classrooms

Tiered or sloped-floored lecture theatres, lecture rooms, lecture demonstration rooms, and classrooms.

1.2 Non-tiered classrooms

Flat-floored lecture rooms, classrooms, seminar rooms, and tutorial rooms.

1.3 Classroom service space

Examination rooms, projection rooms, preparation rooms, closets, storage rooms and other related areas.

Room types excluded

Class laboratories - see category 2.

Assembly facilities - see category 15.

Conference rooms - see categories 4 and 10.

2. LABORATORY - UNDERGRADUATE

Definition

A room used for instruction requiring special-purpose equipment for undergraduate student participation, experimentation, observation, or practice in a field of study, and rooms directly serving these facilities.

Subcategories

2.1 Scheduled class laboratory space

Teaching laboratories, special subject rooms, instructional shops, typing laboratories, drafting rooms, art and music studios, music practice rooms, language laboratories, and other specially designed rooms largely used for scheduled instruction, such as dental, rehabilitation, and psychology clinics.

2.2 Unscheduled class laboratory space

This subcategory may be optionally used to classify key-punch and terminal rooms, general workrooms, drafting rooms, and other special-purpose facilities generally used for informal or irregularly scheduled instruction, or for practice.

2.3 Laboratory (undergraduate) support

Preparation rooms, balance rooms, laboratory storage rooms, demonstration rooms, animal areas, greenhouses, dark rooms, etc. directly serving the laboratory facilities.

Room types excluded

Laboratory space for graduate students and faculty - see category 3.

Non-university clinic facilities for health science programmes in hospitals or other health care areas.

Clinic facilities for university health services - see category 13.

Athletic facilities - see category 6.

Service areas for these excluded room types.

Animal areas classified elsewhere - see cats. 3 and 18.

Greenhouses classified elsewhere - see cats. 3, 9 and 15.

3. LABORATORY - GRADUATE AND FACULTY

Definition

A room used for laboratory applications, research or training in research methodology which requires special-purpose equipment for staff or graduate student experimentation or observation, and rooms directly serving these facilities.

Subcategories

3.1 Laboratory space

Faculty, graduate, and general research facilities.

3.2 Laboratory (faculty and graduate) support space

Rooms directly serving one or more research facilities which directly provide the necessary support to the research functions such as balance rooms, coat rooms, storage areas, dark rooms, technicians' office/workrooms, workshops, animal areas, and greenhouses.

Room types excluded

Undergraduate laboratories and their support space - see category 2.

Animal areas classified elsewhere - see categories 2 and 18.

Greenhouses not in support of research - see categories 2, 9 and 15.

4. INSTRUCTIONAL OFFICES AND RELATED SPACE

Definition

A room usually assigned to one or more individuals on a permanent basis, containing office-type equipment and used by faculty, departmental administrative and support staff, and students, or a room directly serving these facilities.

Subcategories

4.1 Faculty offices

Single or multiple-occupancy offices for teaching and research faculty with rank up to and including department chairmen.

4.2 Departmental academic support staff offices

Office space used by post-doctoral fellows, research assistants, demonstrators, technicians, and other professional staff directly involved in support of teaching or research, not holding an academic appointment.

4.3 Student offices

Single or multiple-occupancy rooms assigned to graduate students for study and to graduate and undergraduate students in their capacity as tutors, teaching or research assistants.

4.4 Departmental support staff offices

Office space used by administrative, clerical, and secretarial support staff to academic departments.

4.5 Office support space

Rooms directly serving office space in this category such as conference rooms, special reference libraries, file rooms, vaults, duplicating rooms, waiting and reception areas, interview rooms, storage areas, private toilets, lunch rooms, and private departmental lounges.

Room types excluded

Student offices associated with extra-curricular student organizations - see category 14.

Graduate laboratory work stations - see category 3.

Technicians' offices/workrooms classified elsewhere - see categories 2, 3, 5, 11 and 12.

Offices for deans and directors of academic divisions and their support personnel - see category 10.

Offices for general university administration - see category 10.

Central duplicating and printing areas - see cat. 12.

Lounges intended for general use - see category 14.

All space under the administration of the university library system.

5. LIBRARY AND STUDY FACILITIES

Definition

A room or group of rooms used for the acquisition, storage, circulation, study, or use of books, periodicals, manuscripts, and other reading and reference materials generally under the administration of the university library system and accessible to the university population at large, and rooms directly serving these facilities.

Subcategories

5.1 Library collection space

Stack and storage areas for books, archives, maps, documents, records, tapes, slides, micromaterials, periodicals, and music scores.

5.2 Study space

Library reading rooms, study carrels, open-stack reading rooms and study areas available to the general university population. These could be located in residences, or in facilities administered by the university library system, or academic departments.

5.3 Library support areas

Office and related areas for library administration, catalogue area, circulation desk, processing areas, bookbinding and repair areas, acquisition and cataloguing work areas, and library staff lounges.

Room types excluded

Media storage for language laboratories - see cat. 2.

Media storage for audio-visual facilities - see cat. 11.

Media storage for recreational purposes - see cat. 14.

Study areas assigned to individuals for their exclusive use in areas not administered by the university library system - see category 4.

Special reference libraries not under the control of the university library administration - see categories 4, 11, 12 and 19.

Faculty and instructional areas associated with academic programmes in library science and teacher education - see categories 2 and 3.

6. RECREATION/ATHLETIC SPACE

Definition

All indoor areas used by students, staff, or the public for athletic activities, either for recreational or competitive purposes, and rooms directly serving these facilities.

Subcategories

6.1 Athletic activity areas

Gymnasia, dance studios, swimming pools, basketball, handball and squash courts, combatives rooms, ice rinks, indoor tracks, indoor rifle and archery ranges, and activity areas including those within field houses.

6.2 Athletic seating areas

All permanent seating and observation areas in gymnasia, swimming pools, field houses, ice rinks, and other indoor activity areas.

6.3 Athletic service space

All ancillary areas directly serving the above such as locker rooms, shower rooms, washrooms, coaches' rooms, equipment supply rooms, and rooms serving athletic facilities.

Room types excluded

Laboratories required to support programmes in Physical and Health Education - see categories 2 and 3.

Office and office-related space serving athletic facilities - see category 10.

Office and office-related space in support of programmes in Physical and Health Education - see category 4.

Indoor rifle ranges associated with military training - see category 19.

7. FOOD SERVICE

Definition

A room or group of rooms used for preparing or eating food or which directly serve these facilities including central facilities located in residences and faculty clubs.

Subcategories

7.1 Food facilities

Dining rooms, cafeterias, snack bars, coffee shops, restaurants, vending machine and other refreshment areas.

7.2 Food facilities service

Kitchen, servery, all food preparation areas, dish-washing areas, refrigeration rooms, freezers, and kitchen storage, receiving, refuse areas and staff lunch, locker and private washrooms.

Room types excluded

Office and office-related space which support food service facilities - see category 10.

Refreshment booths in athletic facilities - see cat. 6.

Kitchen and dining areas located in private living quarters - see category 17.

8. BOOKSTORE AND OTHER MERCHANDISING FACILITIES

Definition

A room or group of rooms used to sell products or services, exclusively or primarily for the university population, and rooms directly serving these facilities.

Subcategory

8.1 Bookstore/Merchandising

Bookstores, Canada post office, barber shops, other stores, and associated service space operated by the university or a commercial enterprise renting space from the university.

Room types excluded

General-use food service facilities - see category 7.

Departmental and campus mail rooms - see categories 4, 10 and 12.

9. PLANT MAINTENANCE

Definition

Space associated with the operation and maintenance of university buildings, grounds, and other elements of the physical plant.

Subcategory

9.1 Plant maintenance

Shops and storage areas for carpentry, plumbing, painting, electrical and other trades, garages for maintenance vehicles and all grounds equipment, greenhouses and related areas.

Room types excluded

Janitorial facilities - see category 16.

Vocational, technical, and instructional shops in support of academic programmes - see categories 2 and 3.

Office and office-related space - see category 10.

Security-related areas - see category 10.

Central stores - see category 12.

Central utility plant - see category 16.

10. ADMINISTRATIVE OFFICE AND RELATED SPACE

Definition

A room usually assigned to one or more individuals on a permanent basis containing office-type equipment and used by administrative and support staff, or a room directly serving these facilities.

Subcategories

10.1 Office areas

Single or multiple-occupancy rooms for executives, administrative staff, deans and directors of academic divisions and their immediate support personnel.

10.2 Office support space

Rooms directly serving office space in this category such as conference rooms, special reference libraries, file rooms, vaults, duplicating rooms, waiting and reception areas, interview rooms, storage areas, private toilets, lunch rooms, and private departmental lounges.

Room types excluded

Office and office-related areas classified elsewhere - see categories 4, 5, 8, 13, 14 and 17.

Central mail, duplicating and printing areas - see category 12.

Lounges intended for general use - see category 14.

11. AUDIO-VISUAL/TELEVISION FACILITIES

Definition

A room or group of rooms used in the production, distribution, and storage of non-print instructional media, and rooms directly serving these facilities.

Subcategory

11.1 AV/TV facilities

Radio, TV, sound, photography, and graphic studios, film and tape libraries, control rooms, storage rooms, recording rooms, repair and servicing work rooms, dark rooms, preparation rooms, and similar related areas.

Room types excluded

Rooms used primarily in support of an academic programme - see category 2 and 3.

Offices and office-related space serving this category - see category 10.

Printing of instructional media - see category 12.

12. CENTRAL SERVICES

Definition

A room or group of rooms used to provide campus-wide services for both academic and non-academic sections of the university, and rooms directly serving these facilities.

Subcategories

12.1 Computing facilities

Central data processing facilities, computer rooms, key-punch areas, technical service and repair areas, and their support spaces.

12.2 Other central services

Central and regional printing and duplicating shops, central receiving areas, central stores, university mail rooms, laundry and drying rooms located in a central laundry, and technical service and repair areas.

Room types excluded

Data processing facilities and related areas intended for the sole use of students or faculty of a single academic unit - see categories 2, 3 and 4.

Laundry and drying rooms classified elsewhere - see categories 6, 8, 17 and 19.

Office or office-related space serving these facilities - see category 10.

13. HEALTH SERVICE FACILITIES

Definition

A room or group of rooms intended to supply health services primarily to the general student population, and rooms directly serving these facilities.

Subcategory

13.1 Health service facilities

Student infirmaries, doctors' offices/examining rooms, their support areas, offices and related areas within health service facilities, and first-aid rooms located elsewhere.

Room types excluded

Laboratory clinics - see categories 2 and 3.

Recreation/Athletic first-aid rooms - see category 6.

Clinic facilities for health science programmes in hospitals or other health care areas - see category 19.

14. COMMON USE AND STUDENT ACTIVITY SPACE

Definition

A room or group of rooms accessible to the general university population intended for recreation, rest, or relaxation, or rooms directly serving these facilities.

Subcategories

14.1 Student offices and support space

Offices and support space for student government, publications, and clubs.

14.2 Recreational facilities and service

Bowling alleys, pool and billiard rooms, ping-pong rooms, ballrooms, chess rooms, card playing areas, music listening areas, hobby rooms, storage and equipment issue rooms.

14.3 Lounge and service space

All general lounge space and kitchenettes, whether for students, faculty, or administrative staff, and general use lounges in residences and faculty clubs, including related service space.

Room types excluded

Athletic facilities, wherever situated, such as gymnasia, pools, and basketball, handball, and squash courts - see category 6.

Lounge space classified elsewhere - see categories 4, 5, 10, 16 and 17.

Offices for administrative staff concerned with student affairs and services - see category 10.

15. ASSEMBLY AND EXHIBITION FACILITIES

Definition

A room or group of rooms intended to serve the general university population and to be used for dramatic, musical, or devotional activities or for exhibition purposes, and rooms directly serving these facilities.

Subcategories

15.1 Assembly facilities

Theatres, auditoria, concert halls, chapels, and convocation halls and ancillary areas such as check-rooms, coat rooms, ticket booths, concession booths, dressing rooms, projection rooms, storage and control rooms.

15.2 Exhibition facilities

Museums, art galleries, other exhibition areas, green-houses used for display only and supporting areas.

Room types excluded

Areas for displaying collections intended primarily for instructional and research purposes - see categories 2 and 3.

Assembly facilities for the primary use of academic programs - see category 2.

16. NON-ASSIGNABLE

Definition

A room or area that is not available for assignment to the occupants of a building but which is necessary for the general occupation or mechanical support of one or a number of buildings.

Subcategories

16.1 Central utility plant

Boiler rooms, refrigeration plant, electrical transformer stations, cooling towers, compressing stations, water treatment facilities, incinerator, and their support areas serving more than one building or the entire campus.

16.2 Other non-assignable areas

Areas used or occupied by janitorial staff, circulation spaces, mechanical and electrical spaces, an incinerator serving one building, public washrooms, and non-assignable unfinished space.

Room types excluded

Circulation aisles within office suites, auditoria, or work areas.

Special-purpose storage and maintenance rooms - see categories 9 and 17.

Custodial supervisors' officers - see category 10.

17. RESIDENTIAL SPACE

Definition

A room or rooms used to accommodate one or more individuals and the ancillary areas in direct support of such rooms.

Subcategories

17.1 Residence living space

Single or multiple-occupancy bedrooms, and all space within apartments.

17.2 Residence service space

Laundry rooms, recreational areas, music rooms, games rooms, locker rooms, special-use lounges adjacent to living quarters, tuck shops, and administrative office space in direct support of residences.

Room types excluded

General-use lounges and recreation areas - see category 14.

General-use library and study areas - see category 5.

Food service and merchandizing facilities coded elsewhere - see categories 7 and 8.

18. ANIMAL SPACE

Definition

Animal facilities in overall support of teaching or research and not normally integrated with or under the control of academic departments.

Subcategories

18.1 Specialized central areas

Conditioning, rearing, and long-range animal holding areas, and rooms directly serving these facilities.

18.2 Farm-type areas

Barn structures, feed storage, and field service areas.

Room types excluded

Animal areas integrated with or under the control of academic departments and in direct support of teaching or research - see categories 2 and 3.

Specialized facilities within central animal areas which are in direct support of research such as operating suites - see category 3.

19. OTHER UNIVERSITY FACILITIES

Definition

Any room or area not included in categories 1 through 15.

Subcategories

19.1 Day care facilities

19.2 Rifle ranges and other space in support of military training

19.3 Merchandising facilities not exclusively or primarily serving the university population.

19.4 Demonstration schools, and other instructional institutions for non-university students.

May 1, 1975

SPACE CLASSIFICATION SCHEME

Section 3 - Glossary

TYPE OF SPACE	DEFINITION	CATEGORY
Animal Space	1. Rearing, conditioning, and holding facilities before animals are ready or required for teaching and research purposes, located either on or off campus.	18
	2. Facilities for long-term holding and care of animals following surgical or other investigative treatment, located either on or off campus.	18
	3. Short-term holding and care of animals either before or following surgical or other investigative treatment, located on campus and closely related to academic departments.	
	- in support of teaching	2
	- in support of research	3
	4. Animal operating suites either for the use of one or several academic departments, located either on or off campus.	3
Coatrooms	see Lockers	
Computing Facilities	1. Centrally located and providing campus-wide services to both academic and non-academic sections of the university.	12
	2. Located in space of an academic division for its convenience, in support of instruction, or research, or both, but available also for general use by all sections of the university.	12
	3. Located in space of an academic division and fully used by that division for combinations of instruction, research, and administration.	12
	4. Located in space of an academic division for a specific use by that division as for example:	

TYPE OF SPACE	DEFINITION	CATEGORY
	- for scheduled instruction in the use of computer equipment	2
	- for service to research by departments of the division	3
Demonstration Schools	1. Facilities generally integrated with university facilities, in which children receive regular school instruction and are available for practice teaching and observation.	19
Examination Rooms	1. Space used exclusively or primarily for examination purposes throughout the academic year.	1
	2. Space used only occasionally for examination purposes as for end-of-term examinations, the primary use of which is for other purposes, classified in the category of its primary use as for example:	
	- an arena or gymnasium used for final examinations	6
	- a meeting or assembly hall used for final examinations	15
Greenhouses	1. Primarily in support of undergraduate instruction	2
	2. Primarily in support of graduate instruction and research	3
	3. Primarily in support of university grounds keeping	9
	4. Primarily for exhibition and display purposes	15
	5. For farm use	18
Inactive Space	1. Space available for occupancy but not assigned at the time of the survey to be classified in the category for which it is intended to be used.	
	2. Space not available for occupancy which was left unfinished at the time of construction is not to be reported.	
	3. Single rooms or small groups of rooms not available for occupancy due to repairs, renovations, or remodelling to be reported in the category of its intended <u>future</u> use.	
	4. Buildings under construction are not to be reported.	

TYPE OF SPACE	DEFINITION	CATEGORY
Kitchenette	1. For an academic department	4
	2. For an administrative department	10
	3. For general lounge service	14
Class Laboratories	1. Primarily used for scheduled instruction, classified as Scheduled Class Laboratory Space	2
	2. Used in an unknown fashion or intended for scheduled use but just not used at the time of reporting, classified as Scheduled Class Lab	2
	3. Primarily used for informal or irregularly scheduled instruction, and for practice, classified as Unscheduled Class Laboratory Space	2
Lockers	1. In support of a particular room, classified in the category of the space it supports, as for example:	
	- for a classroom	1
	- for a teaching laboratory	2
	- for a cafeteria	7
	2. For the general use of the students in a building	14
	3. Lockers in corridors	16
Lounges	1. For the private use of an academic department	4
	2. For the private use of library staff	5
	3. For the private use of a department in central administration	10
	4. For the general use of students or staff or both regardless of where located	14
	5. For general use in residences	14
	6. For the private use of occupants of residences	17

TYPE OF SPACE	DEFINITION	CATEGORY
Lunch, Locker and Change Rooms	1. In support of a particular kind of space to be classified in the category of the space it supports, for example:	
	- for phys-ed	6
	- for a bowling alley	14
	- for a research lab	3
	2. Provided for the exclusive use of people as necessary in the performance of their jobs, to be classified as the characteristic kind of space for that department, for example:	
	- for food service staff	7
	- for security patrolmen	10
	- for maintenance personnel	9
	- for custodial staff	9
Mail Rooms	1. A central facility for sorting and distributing mail for the campus	12
	2. Canada Post Office	8
	3. A room for sorting and distributing mail for:	
	- academic departments	4
	- central library	5
	- service departments and central administration	10
Media Storage (Recorded Music)	See Music Scores Storage and Tape Storage	
Merchandising	1. Products or services provided by the university or a commercial enterprise renting space from the university.	
	- exclusively or primarily for the university population as for example a textbook store	8
	- exclusively or primarily to the non-university community as for example a bank, public office, or commercial building	19

TYPE OF SPACE	DEFINITION	CATEGORY
Music Practice Rooms	See Language Laboratories	
Music Scores Storage	1. For music studios or practice rooms as part of instruction in music	2
	2. For instruction or research, and located in libraries	5
	3. For music listening and recreation, and available to the university population at large, not in the central library	14
	4. For the exclusive use of occupants of residences	17
Offices	1. For faculty, post-doctoral fellows, graduate students, and departmental support staff	4
	2. For the most senior academic administrator in a major division of the university, usually called a dean or director, and their immediate support personnel	10
	3. For academic heads of single academic departments or small groups of closely related programmes, usually called a chairman or department head but sometimes called a dean or director, especially of a school	4
	4. For shared support personnel between the above two categories	4
	5. For library staff	5
	6. For central administrative staff	10
	7. For managers and administrative staff of merchandising operations providing services exclusively or primarily for the university population	8
	8. For recreation/athletic staff	10
	9. For food service staff	10
	10. For maintenance staff	10
	11. For custodial supervisors	10
	12. For AV-TV staff	10
	13. For central services staff	10

TYPE OF SPACE	DEFINITION	CATEGORY
	14. For medical doctors, nurses, and administrative staff engaged in providing health care to students	13
	15. For student clubs or student government	14
	16. For technicians - see Technicians Space	
	17. For research associates - See Research Assistants Space	
Research Assistants Space	1. Space primarily used as work rooms rather than offices, classified as research support space	3
	2. Space containing only office-type equipment, assigned to individuals, classified as departmental office space	4
Special Reference Libraries	1. Reference libraries and reading rooms, not under the administration of the central library system, usually containing specialized or selected materials or special study facilities classified as part of the space they occupy as for example:	
	- in an academic department	4
	- in computer facilities	12
	- in residences	17
Special Subject Rooms	1. For scheduled instruction in non-laboratory oriented subjects for which the space per station is larger than for a normal classroom to accommodate special arrangement of stations or equipment as for example in faculties of Education and Law	2
Stores & Storage	1. Central receiving and storing of equipment, materials, and supplies for university-wide use	12
	2. Storage areas within individual departments, classified in the category of the space they support as for example:	

TYPE OF SPACE	DEFINITION	CATEGORY
	- classroom storage	1
	- department office supplies storage	4
	- building and grounds maintenance storage	9
	- residence storage	17
Study Space	1. Library study space for general or assigned use, under the administration of the university library system	5
	2. Departmental study space for general or assigned use, forming part of the study space of the central library system	5
	3. Departmental study space for general or individual use, but restricted to individuals associated with the department	4
	4. Other departmental study space for undergraduate students in support of laboratory instruction	2
	5. Study space in residences for the exclusive use of the residents and not part of departmental or university library space	17
Tape Storage	1. In direct support of teaching	2
	2. In libraries	5
	3. In support of AV-TV	11
	4. Computer tape storage	12
Technicians Space	1. Space which may contain a desk but is primarily used as a work room rather than an office, classified in the category of the space it supports, as for example:	
	- for teaching laboratory technicians	2
	- for research technicians	3
	- for AV-TV technicians	11
	- for technicians in central services	12

TYPE OF SPACE	DEFINITION	CATEGORY
	2. Space containing only office-type equipment, classified in the category of the office space of the department in which the technician works, as for example:	
	- in teaching laboratories	4
	- in research laboratories	4
	- in AV-TV	10
	- in central services	10
Unassigned or Unfinished Space	See Inactive Space	
Unscheduled Class Labs	See Class Laboratories	

Z-formula space

A special problem of identification may be present for universities with programmes in the Health Sciences. University space that is used to house hospital services or clinical departments usually located in hospitals is not covered by the capital formula. Entitlement for most if not all of this space is generated under the Z formula. However, it will need to be recorded and identified in university space records so that, upon request, it can be reported to MCU. It may need to be reported at a level of detail that will identify:

- the category of assignable space
- the use type within the category
- the clinical department holding the space, and
- the hospital affiliation of the academic staff within the clinical department holding the space

A university may choose to develop its own method of identifying this space within its space records, or it may elect to use one of the following methods:

1. A separate category may be created into which all such space is allocated.
2. All such space may be allocated to the appropriate category of assignable space (categories 1 through 15), identified in such a way that it can be extracted and reported upon request, for example, by department or source of funds.

APPENDIX D

APPENDIX 'D'

Definition of Input Measures

The following definitions identify four major groups of input measures that are useful in determining the space requirements of an institution. The names of the input measures may be readily recognized as being in common university use, but are not always valid for inter-institutional comparison unless detailed descriptions of the terms and, in some cases, the possible end uses are specified. These descriptions have been drawn up in the interests of inter-institutional comparability in response to requests for more exact definitions.

INPUT MEASURES

1.0 F.T.E. Students

1.1 F.T.E. Undergraduates

1.2 F.T.E. Graduates

In order to eliminate as many uncertainties as possible, it is proposed to adopt the definitions for student enrolment which are contained in the Operating Formula Manual published by the Ministry of Colleges and Universities. Accordingly, it is expected that the number of FTE students will generally be consistent with the number reported on the Ministry's UAR 1 forms submitted by universities in December. An exception to this general rule will arise in the case of universities who do not distinguish enrolment of affiliated institutions on separate UAR 1 forms. Such enrolment should be excluded where the related space is not included in a university's inventory.

For universities providing teaching services to affiliated church colleges, the enrolment is to be determined after allowing for the net services provided. For this purpose the fiscal full-time equivalency rules are to be applied to the course registrations of the students receiving instruction both from the university and from the affiliated college (in the case of a university student receiving some portion of his academic program from the affiliated college).

The number of FTE students reported will be the sum of:

1) eligible fall term FFTE undergraduates x 2;

2) eligible and ineligible fall full-time graduates;

3) the full-time equivalency of eligible and ineligible fall part-time graduates;

4) such adjustments as may be required because of affiliated institutions.

The inclusion of ineligible graduates is intended to include those students who are making substantial demands on the university facilities, but for whom operating funds are not provided or for whom course durations have expired.

Universities operating trimester programs would normally be expected to report the fall term enrolment only. In a case in which this was seen to be not representative, the university may choose to report a simple average of the fall and winter terms. In no case should the university use the three terms divided by two calculation as a basis for reporting.

2.0 Weekly Student Contact Hours

2.1 Laboratory

2.2 Non-Laboratory

The weekly student contact hours of a university are defined to be equal to the sum of the weekly student contact hours of all courses which are offered by the university as part of a program of studies leading to a degree or diploma. The weekly student contact hours of a course are the product of the course enrolment and the hours of scheduled instruction received by each enrolled student during the reporting week. The course enrolment is the number of students participating in the instructional activities of the course. The hours of scheduled instruction are generally indicated in the course description contained in the university calendar or may be separately captured as data on a course file. The reporting week of a university is to be any representative week of the Fall term, which should generally correspond with the student enrolment as of November 1.

Laboratory weekly student contact hours are those weekly student contact hours of courses or portions of courses in which the instructional activity is facilitated by demonstration or experimentation requiring additional equipment not ordinarily available in classrooms. This would normally include courses requiring the use of language laboratories, the subject classrooms of faculties of education and art and other studios, as well as the traditional engineering, physical and biological science laboratories. Non-laboratory student contact hours are all weekly student contact hours as described above, other than laboratory weekly student contact hours.

3.0 F.T.E. Faculty

The faculty of a university is defined to include all persons up to and including department heads or chairmen holding an academic appointment, who receive remuneration from the university in return for conducting the instructional or research activities in part or in whole of courses offered by the university as part of a program of studies leading to a degree or diploma.

The term academic appointment will normally be limited to those persons who are in or above that rank which is immediately below that of Assistant Professor, as consistent with Statistics Canada reporting.

Included are visiting appointments and faculty on Sabbatical or Study Leave.

Excluded are Post Doctoral Fellows, clinical staff with full- or (the part-time portion of) part-time hospital appointments and

faculty on unpaid leaves of absence, deans of major schools or academic divisions, vice-presidents and presidents.

The university may designate each member of faculty as full-time or part-time, but such designation should be made in association with consideration of the expected contribution of the member's time required to fulfill his assigned responsibilities. The full-time equivalent of part-time faculty is derived by dividing the total salary paid to part-time faculty by the average salary of all university full-time faculty.

4.0 Library Collections (Equivalent Volumes)

The library materials identified in the university library catalogue and contained in the following tables are to be included at the stated volume equivalency rate.

Material	Items		Equivalency
For Material Stored on Horizontal Storage Units			
Volumes - excluding reference	125		125
Computer tapes	125		125
Documents, pamphlets, archives	1,000	(items)	125
Microfilm - boxed on shelves	400	(reels)	125
Microfiche - boxed on shelves	10,000		125
Newspapers - current titles on display	7	(titles)	125
Newspapers - unbound back files	7		125
Newspapers - bound back files	9	(volumes)	125
Periodicals - unbound titles on display	9	(titles)	125
Periodicals - boxed current year	30	(titles)	125
Periodicals - boxed back files	Included in volume count		
Phonodiscs - records	500		125
- tapes	500		125
- cassettes	1,000		125
Reference	45	(volumes)	125
Atlases	45		125
Slides - carousel boxes	75	(carousels)	125
Films	125	(films)	125
Filmstrips (boxed)	2,250	(strips)	125
For Material in Vertical Storage Units			
Maps	105		125
Microfilm (reels)	315		125
Micro-cards, fiche, etc.	7,900		125
Pamphlets	790	(pamphlets)	125
Slides (in cases)			
- bound	2,560	(slides)	125
- unbound	5,120	(slides)	125
Filmstrips	580	(strips)	125
Mounted Photos	790	(photos)	125

APPENDIX E

APPENDIX 'E'

INVENTORY OF THE PHYSICAL FACILITIES OF ONTARIO UNIVERSITIES

The following tables were compiled by the Research Division of COU based on institutional submissions received in Spring 1978. They present inventory data as of 1 November 1977.

Table 1 is a summary of all net assignable square footage (NASF), by institution, for categories of space covered by COU space standards (categories 1 - 15) and for categories of space to which the standards do not apply (categories 17 - 20). The column labelled "Scheduled for Demolition" provides an indication of the NASF reported in categories 1 - 15 which institutions are presently planning to demolish. The column labelled "Privately Funded" includes NASF (categories 1 - 15) for construction which has been privately funded and for space constructed prior to November 1971 which was not included in the "allocation inventory" that constituted a factor in the interim capital formula. The column labelled "NASF Rentals" reflects the space reported in categories 1 - 15 which was being rented as of November, 1977. The rental costs associated with this space, for the 1977-78 fiscal year are reported in the column "Rental Costs".

Table 2 presents a detailed breakdown of all NASF, by institution, for each of the 20 space categories defined by the Sub-Committee on Space Coding.

Table 3 presents a distribution of NASF (categories 1 - 15) by age and excluding rentals. Age was determined according to the year of completion of a building cited or the year of major renovation. The final column, "Average Age" is a weighted average.

Tables 4 - 22 present institutional space requirements as measured by COU revised space standards by comparison to actual inventory. It should be

noted that the data in these and all subsequent tables includes space scheduled for demolition, privately funded space and rentals. Further, no provision for age or quality has been made.

Tables 23 - 33 provide an analysis of space generated and inventoried by space type.

Table 34 summarizes space generated and space inventoried per FTE student.

TABLE 1

INVENTORY OF UNIVERSITY SPACE, NOVEMBER 1, 1977

INSTITUTION	NASF 1 - 15	NASF 17 - 20	SCHEDULED FOR DEMOLITION	PRIVATELY FUNDED	NASF RENTALS	RENTAL COSTS
BROCK	484373	69498	-	7068	-	-
CARLETON	1099574	235495	-	-	-	-
GUELPH	1475961	920944	133390	74222	3734	-
LAKEHEAD	468591	103241	-	-	960	960
LAURENTIAN	437976	-	-	-	-	-
MCMASTER	1246381	427369	-	-	10657	35232
OTTAWA	1391468	205205	134198	46440	102207	326508
QUEEN'S	1729059	658534	-	287015	16948	58000
TORONTO	3844455	672162	331312	271617	178647	922677
ERINDALE	407684	66198	1642	22138	-	-
SCARBOROUGH	325339	78183	12763	4354	-	-
TRENT	315541	229009	-	-	-	-
WATERLOO	1568488	845564	-	41162	44823	130215
WESTERN	2161832	709648	-	189000	-	-
WLU	330155	114793	13839	53789	29757	123263
WINDSOR	939031	259242	-	-	1785	2528
YORK	1511028	712233	-	4413	-	-
GLENDON	150115	83704	-	-	-	-
RYERSON	916903	15441	-	-	44057	265099
TOTAL	20803954	6406463	627144	1001218	433575	1864482

DISTRIBUTION OF NASF BY MAJOR SPACE CATEGORY AND INSTITUTION

	Institution	Classroom Facilities	Lab - Undergrad.	Lab - Grad. & Faculty	Instruction Office & Related	Library & Study Facilities	Recreation / Athletic Space	Food Service	Bookstore & Other Merch. Facilities	Plant Maintenance	Admin. Office & Related	Audio-Visual Television Facilities
1)	Brock	63403	82438	19149	70203	58064	56501	29585	4476	3335	25543	2519
2)	Carleton	124826	191459	90457	204579	107362	86980	59978	19624	13250	76958	8712
3)	Guelph	117359	309148	184784	209622	146612	78894	70305	27070	53288	114024	9175
4)	Lakehead	46446	117739	33439	47621	56904	64311	22461	3974	10099	25505	398
5)	Laurentian	60950	57901	18630	55303	67075	68005	31301	5461	7046	28642	5768
6)	McMaster	114947	172115	224139	168634	132121	97128	66495	10778	38293	98189	3732
7)	Ottawa	171487	199720	144839	276944	185590	69985	48714	24273	9446	92475	17115
8)	Queen's	161668	321970	223744	274969	173957	134498	72830	28345	9193	106169	4766
9)	Toronto: -St. George	410384	545223	666716	668824	629859	171035	109882	27903	75798	273347	16168
	-Erindale	48568	56745	64114	54328	54499	23885	23349	4990	5858	20726	1492
	-Scarborough	27947	72858	28467	35501	26866	42525	16532	2747	[illegible]956	13502	6391
10)	Trent	25611	37635	24062	35337	58959	37106	35943	410	6223	24277	6134
11)	Waterloo	144012	256391	289918	250014	141410	70222	85614	19694	47378	110996	4743
12)	Western	236085	350722	256203	312807	237592	127627	132873	39426	40970	160416	6411
13)	WLU	48983	21529	7972	49814	53072	47087	19702	5629	8177	24547	2171
14)	Windsor	101590	183846	84851	143806	146942	58962	37538	15284	15608	49550	19564
15)	York: -York	201055	159441	118288	296880	234623	78970	83089	35530	11894	141682	9516
	-Glendon	20000	8981	1701	22365	22415	28004	12600	3399	3118	9470	128
16)	Ryerson	132704	332595	--	102357	83588	35810	42159	7011	21865	58986	19319
	Total	2258025	3478456	2481[illegible]73	3279908	2617510	1377535	1000950	286024	402795	1455004	144222

TABLE 2

Central Services	Health Service Facilities	Common Use & Student Activity Space	Assembly & Exhibition Facilities	SUB TOTAL	Non Assignable	Residential Space	Animal Space	Other	Health Sci. Clinical Facilities	TOTAL	
20662	745	25796	21954	484373	327968	68122	-	1376	-	881839	(1
24984	5655	74595	10160	1099579	704570	230234	-	5261	-	2039644	(2
31880	5094	57756	60950	1475961	1291252	790547	81765	8280	40352	3688157	(3
11728	2018	16362	9586	468591	339361	103241	-	-	-	911193	(4
10625	721	5107	15441	437976	-	-	-	-	-	437976	(5
53485	4839	44629	16857	1246381	587133	406903	-	20466	-	2260883	(6
22922	915	90380	35678	1390483	809702	188086	-	17125	-	2405396	(7
59558	6076	81018	48992	1707753	1086384	534130	24049	46850	77774	3476940	(8
30598	6596	137602	74520	3844455	2597709	354802	1728	175741	143319	7117754	(9
9114	1222	28584	10210	407684	272339	61849	-	4349	-	7462.	
6978	905	18306	3858	325339	225237	53390	-	24793	-	628759	
3958	1056	18830	-	315541	273319	199044	-	29965	-	817869	(10
53350	6529	58236	30007	1568514	1167005	809530	-	22094	13937	3581080	(11
41723	6373	144395	68221	2161846	1297562	646882	26834	17527	18466	4169057	(12
7290	1811	17589	14782	330155	194943	114793	-	-	-	639891	(13
17957	1768	46043	15722	939031	434686	256817	-	3601	-	1634135	(14
22024	1682	93502	23108	1511284	1044436	703968	-	8279	-	3267967	(15
1956	2207	10751	3012	150107	120886	82704	-	937	-	354634	
13184	1701	39328	26296	916903	148758	-	-	18448	-	1084109	(16
443976	57915	1008809	489354	20781956	12923250	5604982	134376	405092	293848	40143504	

AGE PROFILE OF ONTARIO UNIVERSITY SPACE,[1] November 1, 1977

	NASF 0-9 Years	NASF 10-19 Years	NASF 20-29 Years	NASF 30-39 Years	NASF 40-49 Years	NASF 50 + Years	NASF Total	Average Age
Brock	313371	169339	-	-	1663	-	484373	7.55
Carleton	469412	630162	-	-	-	-	1099574	10.21
Guelph	762388	415638	68866	9387	42953	172995	1472227	17.53
Lakehead	262195	143918	61518	-	-	-	467631	10.16
Laurentian	269400	168576	-	-	-	-	437976	8.97
McMaster	408273	737274	67541	16443	6193	-	1235724	11.91
Ottawa	654861	162594	164385	-	-	307421	1289261	21.99
Queen's	724320	733320	88146	23755	59850	82720	1712111	15.19
Toronto	1287491	1206731	307164	2819	126412	735191	3665808	24.24
Erindale	401543	-	6141	-	-	-	407684	5.22
Scarborough	111424	202852	11063	-	-	-	325339	9.11
Trent	231185	66237	-	1547	-	18349	317318	11.64
Waterloo	750630	773035	-	-	-	-	1523665	10.56
Western	1071999	851604	118907	43823	22464	53035	2161832	11.79
WLU	152551	112929	21079	13839	-	-	300398	11.24
Windsor	379111	477330	-	35670	25748	19387	937246	13.61
York	1020685	490343	-	-	-	-	1511028	8.43
Glendon	-	136327	-	-	-	13788	150115	17.72
Ryerson	446764	373211	52871	-	-	-	872846	10.20
TOTAL	9717603	7851420	967681	147283	285283	1402886	20372156	14.63

[1] Excluding rentals

TABLE 3

TABLE 4

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

BROCK

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	3082.5	13.0	40073	63403	158.2
CLASS LAB:	LAB HOURS-GRP W		8.5			
	-GRP X	2601.5	6.5	16910		
	-GRP Y	2928.5	5.0	14643		
	-GRP Z	1511.0	3.0	4653		
				36205	82438	227.7
RESEARCH:	FTE FACULTY - A	91.3	500	45650		
	+ 1/2 GRADS - B		350			
	- C		200			
	- D		75			
	- E	195.3	0			
				45650	19149	41.9
ACAD OFFICE:	FTE FACULTY	256.4	210	53844	67682	125.7
	FTE GRADS	60.3	40	2412	2521	104.5
ADM OFFICE:	FTE STUDENTS	3082.5	9	27743	25543	92.1
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		65214	.07			
		0	.06	28565	30292	
STUDY	FTE U/GRADS	2737.9	5.0			
	PROF U/GRADS	268.6	12.0			
	FTE GRADS	76.0	8.0	17521	15055	
SERVICE STACK + STUDY		46086	.25	11522	12717	
				57608	58064	100.8
ATHLETICS:	FTE STUDENTS + 20000 BASE	3082.5	8.0	44660	56501	126.5
GENERAL USE:	FTE STUDENTS	3082.5	17.5	53944	81811	151.7
SPECIAL USE:	FTE STUDENTS	3082.5	6.0	18495	27261	147.4
				380634	484373	127.3

* Does not include a provision for age-quality discount.

TABLE 5

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

CARLETON

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	10225	13.0	132925	124826	93.9
CLASS LAB:	LAB HOURS-GRP W	7167	8.5	60920	38042	
	-GRP X	10937	6.5	71094	90170	
	-GRP Y	5746	5.0	28730	40381	
	-GRP Z	1989	3.0	5967	22866	
				166711	191459	114.8
RESEARCH:	FTE FACULTY - A	134.4	500	67200	48515	
	+ 1/2 GRADS - B	127.7	350	44695	20731	
	- C	64.4	200	12880	10037	
	- D	40.1	75	3008	5971	
	- E	805.7	0	0	5203	
				127783	90457	70.8
ACAD OFFICE:	FTE FACULTY	610.5	210			
	FTE GRADS	1123.6	40	173149	204579	118.2
ADM OFFICE:	FTE STUDENTS	10225	9	92025	76958	83.6
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		557430	.06	78446	46479	
STUDY	FTE U/GRADS	9101.4	5.0			
	PROF U/GRADS		12.0			
	FTE GRADS	1123.6	8.0	54496	31060	
SERVICE STACK + STUDY		132942	.25	33236	29823	
				166178	107362	64.6
ATHLETICS:	FTE STUDENTS + 20000 BASE	10225	8.0	101800	86980	85.4
GENERAL USE:	FTE STUDENTS	10225	17.5	178938	164357	91.9
SPECIAL USE:	FTE STUDENTS	10225	6.0	61350	52601	85.7
				1200859	1099579	91.6

*Does not include a provision for age-quality discount.

TABLE 6

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

GUELPH (excluding OMAF)

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	10655.8	13.0	138525	117359	84.7
CLASS LAB:	LAB HOURS-GRP W	19034	8.5	161789	131003	
	-GRP X	19523	6.5	126900	78040	
	-GRP Y	18995	5.0	94975	78768	
	-GRP Z	7767	3.0	23301	21337	
				406965	309148	76.0
RESEARCH:	FTE FACULTY - A	502.6	500	251300	163832	
	+ 1/2 GRADS - B	19.85	350	6948	6689	
	- C	60.2	200	12040	4662	
	- D	98.9	75	7418	7220	
	- E	313.85	0	0	2381	
				277706	184784	66.5
ACAD OFFICE:	FTE FACULTY	706.7	210			
	FTE GRADS	593.6	40	172151	209622	121.8
ADM OFFICE:	FTE STUDENTS	10655.8	9	95902	114024	118.9
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		820423	.06	94225	54507	
STUDY	FTE U/GRADS	9594	5.0			
	PROF U/GRADS	468	12.0			
	FTE GRADS	593.6	8.0	58335	63845	
SERVICE STACK + STUDY		152560	.25	38140	28260	
				190700	146612	76.9
ATHLETICS:	FTE STUDENTS + 20000 BASE	10655.8	8.0	105246	78894	75.0
GENERAL USE:	FTE STUDENTS	10655.8	17.5	186477	216081	115.9
SPECIAL USE:	FTE STUDENTS	10655.8	6.0	63935	99437	155.5
				1637607	1475961	90.1

* Does not include a provision for age-quality discount.

TABLE 7

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

LAKEHEAD

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	3391.8	13.0	44093	46446	105.3
CLASS LAB:	LAB HOURS-GRP W	6266	8.5	53261	50285	
	-GRP X	3627	6.5	23576	31455	
	-GRP Y	2246	5.0	11230	24461	
	-GRP Z	1635	3.0	4905	11538	
				92972	117739	126.6
RESEARCH:	FTE FACULTY - A	50.62	500	25310	24851	
	+ 1/2 GRADS - B	47.87	350	16755	1862	
	- C	30.24	200	6048	5569	
	- D	35.38	75	2654	1156	
	- E	180.26	0	0	0	
				50767	33438	65.9
ACAD OFFICE:	FTE FACULTY	276.77	210			
	FTE GRADS	135.20	40	63530	47621	75.0
ADM OFFICE:	FTE STUDENTS	3391.8	9	30526	25505	83.6
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		110000	.07			
			.06	31700	20211	
STUDY	FTE U/GRADS	3256.6	5.0			
	PROF U/GRADS	346.8	12.0			
	FTE GRADS	135.2	8.0	21527	31228	
SERVICE STACK + STUDY		53227	.25	13307	5465	
				66534	56904	85.5
ATHLETICS:	FTE STUDENTS + 20000 BASE	3391.8	8.0	47134	64311	136.4
GENERAL USE:	FTE STUDENTS	3391.8	17.5	59357	52383	88.3
SPECIAL USE:	FTE STUDENTS	3391.8	6.0	20351	24243	119.1
				475264	468590	98.6

* Does not include a provision for age-quality discount.

TABLE 8

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

LAURENTIAN

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	2963	13.0	38519	60950	158.2
CLASS LAB:	LAB HOURS-GRP W	636	8.5	5406		
	-GRP X	2761	6.5	17947		
	-GRP Y	1740	5.0	8700		
	-GRP Z	1149	3.0	3447		
				35500	57901	163.1
RESEARCH:	FTE FACULTY - A	44	500	22000		
	+ 1/2 GRADS - B	8	350	2800		
	- C	17	200	3400		
	- D	29	75	2175		
	- E	226	0			
				30375	18630	61.3
ACAD OFFICE:	FTE FACULTY	275	210			
	FTE GRADS	98	40	61670	55303	89.7
ADM OFFICE:	FTE STUDENTS	2963	9	26667	28642	107.4
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		173975	.07			
			.06	36178	31869	
STUDY	FTE U/GRADS	1489	5.0			
	PROF U/GRADS	1376	12.0			
	FTE GRADS	98	8.0	24741	18453	
SERVICE STACK + STUDY		60919	.25	15230	16753	
				76149	67075	88.1
ATHLETICS:	FTE STUDENTS + 20000 BASE	2963	8.0	43704	68005	155.6
GENERAL USE:	FTE STUDENTS	2963	17.5	51853	57310	110.5
SPECIAL USE:	FTE STUDENTS	2963	6.0	17778	24160	135.9
				382215	437976	114.6

* Does not include a provision for age-quality discount.

TABLE 9

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

McMASTER (Excluding Health Sciences)

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	10320	13.0	134160	114947	85.7
CLASS LAB:	LAB HOURS-GRP W	4036	8.5	34306	35391	
	-GRP X	9341	6.5	60716	75717	
	-GRP Y	6811	5.0	34055	43654	
	-GRP Z	7995	3.0	23985	17353	
				153062	172115	112.4
RESEARCH:	FTE FACULTY - A	192.45	500	96225	135003	
	+ 1/2 GRADS - B	165.15	350	57803	50779	
	- C	48.85	200	9770	31342	
	- D	96.45	75	7234	6639	
	- E	699.65	0	0	376	
				171032	224139	131.1
ACAD OFFICE:	FTE FACULTY	610.75	210			
	FTE GRADS	1183.6	40	175601	168634	96.0
ADM OFFICE:	FTE STUDENTS	10320	9	92880	98189	105.7
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		777046	.06	91623	57880	
STUDY	FTE U/GRADS	8984	5.0			
	PROF U/GRADS	153	12.0			
	FTE GRADS	1183.6	8.0	56225	49385	
SERVICE STACK + STUDY		147847	.25	36961	24856	
				184809	132121	71.5
ATHLETICS:	FTE STUDENTS + 20000 BASE	10320	8.0	102560	97128	94.7
GENERAL USE:	FTE STUDENTS	10320	17.5	180600	138759	76.8
SPECIAL USE:	FTE STUDENTS	10320	6.0	61920	100349	162.1
				1256624	1246381	99.2

* Does not include a provision for age-quality discount.

TABLE 10

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

OTTAWA

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	13314.1	13.0	173083	171487	99.1
CLASS LAB:	LAB HOURS-GRP W	4710.8	8.5	40042		
	-GRP X	15225.7	6.5	98967		
	-GRP Y	7315.7	5.0	36579		
	-GRP Z	8559.5	3.0	25679		
				201267	199720	99.2
RESEARCH:	FTE FACULTY - A	316.3	500	158150		
	+ 1/2 GRADS - B	115.4	350	40390		
	- C	197.6	200	39520		
	- D	106.1	75	7958		
	- E	1138.3	0	0		
				246018	144839	58.9
ACAD OFFICE:	FTE FACULTY	1072	210			
	FTE GRADS	1603.8	40	289272	276944	95.7
ADM OFFICE:	FTE STUDENTS	13314.1	9	119827	92475	77.2
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		773332	.06	91400	82184	
STUDY	FTE U/GRADS	7887.6	5.0			
	PROF U/GRADS	3773	12.0			
	FTE GRADS	1653.5	8.0	97942	65041	
SERVICE STACK + STUDY		189342	.25	47335		
				236677	185590	78.4
ATHLETICS:	FTE STUDENTS + 20000 BASE	13314.1	8.0	126513	69985	55.3
GENERAL USE:	FTE STUDENTS	13314.1	17.5	232997	199045	85.4
SPECIAL USE:	FTE STUDENTS	13314.1	6.0	79885	50398	63.1
				1705539	1390483	81.5

* Does not include a provision for age-quality discount.

TABLE 11

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

QUEEN'S

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	12000	13.0	156000	161668	103.6
CLASS LAB:	LAB HOURS-GRP W	6800	8.5	57800	109162	
	-GRP X	28700	6.5	186550	109192	
	-GRP Y	13065	5.0	65325	91127	
	-GRP Z	12000	3.0	36000	12489	
				345675	321970	93.1
RESEARCH:	FTE FACULTY - A	254.5	500	127250	146171	
	+ 1/2 GRADS - B	150.4	350	52640	41490	
	- C	64.8	200	12960	12571	
	- D	88.0	75	6600	10183	
	- E	859.7	0		13329	
				199450	223744	112.2
ACAD OFFICE:	FTE FACULTY	772.4	210			
	FTE GRADS	1290	40	213804	274969	128.6
ADM OFFICE:	FTE STUDENTS	12000	9	108000	106169	98.3
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		1000000	.06	105000	65089	
STUDY	FTE U/GRADS	10078	5.0			
	PROF U/GRADS	1600	12.0			
	FTE GRADS	1290	8.0	79910	74112	
SERVICE STACK + STUDY		180000	.25	46228	34756	
				231138	173957	75.3
ATHLETICS:	FTE STUDENTS + 20000 BASE	12000	8.0	116000	134498	115.9
GENERAL USE:	FTE STUDENTS	12000	17.5	210000	231185	110.1
SPECIAL USE:	FTE STUDENTS	12000	6.0	72000	79593	110.5
				1652067	1707753	103.4

* Does not include a provision for age-quality discount.

TABLE 12

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

TORONTO - ST. GEORGE

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	26724	13.0	347412	410384	118.1
CLASS LAB:	LAB HOURS-GRP W	11206	8.5	95251	111178	
	-GRP X	46989	6.5	305429	323002	
	-GRP Y	15917	5.0	79585	99413	
	-GRP Z	6582	3.0	19746	11630	
				500011	545223	109.0
RESEARCH:	FTE FACULTY - A	906	500	453000	454117	
	+ 1/2 GRADS - B	632	350	221200	179358	
	- C	70	200	14000	17059	
	- D	292	75	21900	9523	
	- E	2551	0	0	6659	
				710100	666716	93.9
ACAD OFFICE:	FTE FACULTY	2035	210			
	FTE GRADS	4832	40	620630	668824	107.8
ADM OFFICE:	FTE STUDENTS	26724	9	240516	273347	113.7
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		3874337	.06	277460	287267	
STUDY	FTE U/GRADS	17150	5.0			
	PROF U/GRADS	4742	12.0			
	FTE GRADS	4832	8.0	181310	191432	
SERVICE STACK + STUDY		458770	.25	114693	151160	
				573463	629859	109.8
ATHLETICS:	FTE STUDENTS + 20000 BASE	26724	8.0	233792	171035	73.2
GENERAL USE:	FTE STUDENTS	26724	17.5	467670	349907	74.8
SPECIAL USE:	FTE STUDENTS	26724	6.0	160344	129160	80.6
				3853938	3844455	99.8

* Does not include a provision for age-quality discount.

TABLE 13

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

TORONTO - ERINDALE

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	3721	13.0	48373	48568	100.4
CLASS LAB:	LAB HOURS-GRP W		8.5			
	-GRP X	2829	6.5	18389	19372	
	-GRP Y	4280	5.0	21400	29697	
	-GRP Z	236	3.0	708	7676	
				40497	56745	140.1
RESEARCH:	FTE FACULTY - A	61	500	30500	51313	
	+ 1/2 GRADS - B		350			
	- C	14	200	2800	8759	
	- D	24	75	1800	2730	
	- E	114	0	0	1312	
				35100	64114	182.7
ACAD OFFICE:	FTE FACULTY	213	210			
	FTE GRADS		40	44730	54328	121.5
ADM OFFICE:	FTE STUDENTS	3721	9	33489	20726	61.9
LIBRARY:						
STACK	FTE VOLUMES	244272	.08			
			.07			
			.06	19542	14083	
STUDY	FTE U/GRADS	3721	5.0			
	PROF U/GRADS		12.0			
	FTE GRADS		8.0	18605	29029	
SERVICE STACK + STUDY		38147	.25	9537	11387	
				47684	54499	114.3
ATHLETICS:	FTE STUDENTS + 20000 BASE	3721	8.0	49768	23885	48.0
GENERAL USE:	FTE STUDENTS	3721	17.5	65118	67133	103.1
SPECIAL USE:	FTE STUDENTS	3721	6.0	22326	17686	79.2
				387085	407684	105.3

* Does not include a provision for age-quality discount.

TABLE 14

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

TORONTO - SCARBOROUGH

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	3392	13.0	44096	27947	63.4
CLASS LAB:	LAB HOURS-GRP W		8.5			
	-GRP X	1970	6.5	12805	26902	
	-GRP Y	4392	5.0	21960	38956	
	-GRP Z	171	3.0	513	7000	
				35278	72858	206.5
RESEARCH:	FTE FACULTY - A	58	500	29000	19194	
	+ 1/2 GRADS - B		350			
	- C	19	200	3800	5818	
	- D	30	75	2250	2937	
	- E	115	0	0	518	
				35050	28467	81.2
ACAD OFFICE:	FTE FACULTY	222	210			
	FTE GRADS		40	46620	35501	76.1
ADM OFFICE:	FTE STUDENTS	3392	9	30528	13502	44.2
LIBRARY:						
STACK	FTE VOLUMES	250000	.08			
			.07			
			.06	20000	12103	
STUDY	FTE U/GRADS	3392	5.0			
	PROF U/GRADS		12.0			
	FTE GRADS		8.0	16960	10834	
SERVICE STACK + STUDY		36960	.25	9240	3929	
				46200	26866	58.2
ATHLETICS:	FTE STUDENTS + 20000 BASE	3392	8.0	47136	42525	90.2
GENERAL USE:	FTE STUDENTS	3392	17.5	59360	41443	69.8
SPECIAL USE:	FTE STUDENTS	3392	6.0	20352	36230	178.0
				364620	325339	89.2

* Does not include a provision for age-quality discount.

TABLE 15

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

TRENT

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	2578	13.0	33514	25611	76.4
CLASS LAB:	LAB HOURS-GRP W		8.5			
	-GRP X	1203	6.5	7820	13962	
	-GRP Y	3921	5.0	19605	20997	
	-GRP Z	568	3.0	1704	2676	
				29129	37635	129.2
RESEARCH:	FTE FACULTY - A	28.5	500	14250	17982	
	+ 1/2 GRADS - B		350			
	- C	14.7	200	2940	4308	
	- D	42.0	75	3150	1772	
	- E	109.8	0	0		
				20340	24062	118.3
ACAD OFFICE:	FTE FACULTY	182	210			
	FTE GRADS	26	40	39260	35337	90.0
ADM OFFICE:	FTE STUDENTS	2578	9	23202	24277	104.6
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		134917	.07			
			.06	33444	24305	
STUDY	FTE U/GRADS	2552	5.0			
	PROF U/GRADS		12.0			
	FTE GRADS	26	8.0	12968	15830	
SERVICE STACK + STUDY		41435	.25	11603	13824	
				58015	58959	101.6
ATHLETICS:	FTE STUDENTS + 20000 BASE	2578	8.0	40624	37106	91.3
GENERAL USE:	FTE STUDENTS	2578	17.5	45115	55183	122.3
SPECIAL USE:	FTE STUDENTS	2578	6.0	15468	17371	112.3
				304666	315541	103.6

* Does not include a provision for age-quality discount.

TABLE 16

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

WATERLOO

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	13199	13.0	171587	144012	83.9
CLASS LAB:	LAB HOURS-GRP W	8589	8.5	73006	53992	
	-GRP X	18240	6.5	118560	115827	
	-GRP Y	9140	5.0	45700	57523	
	-GRP Z	7708	3.0	23124	29049	
				260390	256391	98.5
RESEARCH:	FTE FACULTY - A	205	500	102500	101629	
	+ 1/2 GRADS - B	360	350	126000	131410	
	- C	110	200	22000	38125	
	- D	195	75	14625	9739	
	- E	585	0		9015	
				265125	289918	109.4
ACAD OFFICE:	FTE FACULTY	764	210			
	FTE GRADS	1382	40	215720	250014	115.9
ADM OFFICE:	FTE STUDENTS	13199	9	118791	110996	93.4
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		515010	.06	75900	54721	
STUDY	FTE U/GRADS	11587	5.0			
	PROF U/GRADS	230	12.0			
	FTE GRADS	1382	8.0	71751	58337	
SERVICE STACK + STUDY		147651	.25	36913	28352	
				184564	141410	76.6
ATHLETICS:	FTE STUDENTS + 20000 BASE	13199	8.0	125592	70222	55.9
GENERAL USE:	FTE STUDENTS	13199	17.5	230982	193551	83.8
SPECIAL USE:	FTE STUDENTS	13199	6.0	79194	112000	141.4
				1651945	1568514	94.9

* Does not include a provision for age-quality discount.

TABLE 17

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

WESTERN

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	16693.9	13.0	217021	236085	108.8
CLASS LAB:	LAB HOURS-GRP W	4336	8.5	36856		
	-GRP X	15121	6.5	98287		
	-GRP Y	17025	5.0	85125		
	-GRP Z	11532	3.0	34596		
				254864	350722	137.6
RESEARCH:	FTE FACULTY - A	438.74	500	219370		
	+ 1/2 GRADS - B	104.13	350	36446		
	- C	91.01	200	18202		
	- D	210.36	75	15777		
	- E	1302.53	0	0		
				289795	256203	88.4
ACAD OFFICE:	FTE FACULTY	1234.72	210			
	FTE GRADS	1824.10	40	332255	312807	94.1
ADM OFFICE:	FTE STUDENTS	16693.9	9	150245	160416	106.8
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		802911	.06	93175	95429	
STUDY	FTE U/GRADS	12789.8	5.0			
	PROF U/GRADS	2080.0	12.0			
	FTE GRADS	1824.1	8.0	103502	96067	
SERVICE STACK + STUDY		196676.5	.25	49169	46096	
				245846	237592	96.6
ATHLETICS:	FTE STUDENTS + 20000 BASE	16693.9	8.0	153551	127627	83.1
GENERAL USE:	FTE STUDENTS	16693.9	17.5	292143	384915	131.7
SPECIAL USE:	FTE STUDENTS	16693.9	6.0	100163	95479	95.3
				2035883	2161846	106.2

* Does not include a provision for age-quality discount.

TABLE 18

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

WILFRID LAURIER

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	3677.5	13.0	47807	48983	102.5
CLASS LAB:	LAB HOURS-GRP W		8.5			
	-GRP X	1627	6.5	10576	13689	
	-GRP Y	2385	5.0	11925	6532	
	-GRP Z	2081.5	3.0	6244	1308	
				28745	21529	74.9
RESEARCH:	FTE FACULTY - A	16.51	500	8255	2946	
	+ 1/2 GRADS - B		350			
	- C	25.82	200	5164	1832	
	- D	33.71	75	2528	3194	
	- E	308.24	0	0		
				15947	7972	50.0
ACAD OFFICE:	FTE FACULTY	243.18	210			
	FTE GRADS	278.1	40	62192	49814	80.1
ADM OFFICE:	FTE STUDENTS	3677.5	9	33098	24547	74.2
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		101765	.07			
			.06	31124	23180	
STUDY	FTE U/GRADS	3399.4	5.0			
	PROF U/GRADS		12.0			
	FTE GRADS	278.1	8.0	19222	21298	
SERVICE STACK + STUDY		50346	.25	12587	8594	
				62933	53072	84.3
ATHLETICS:	FTE STUDENTS + 20000 BASE	3677.5	8.0	49420	47087	95.3
GENERAL USE:	FTE STUDENTS	3677.5	17.5	64356	57702	89.7
SPECIAL USE:	FTE STUDENTS	3677.5	6.0	22065	19449	88.1
				386563	330155	85.4

* Does not include a provision for age-quality discount.

TABLE 19

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

WINDSOR

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	8571.9	13.0	111435	101590	91.2
CLASS LAB:	LAB HOURS-GRP W	5561.0	8.5	47268	41191	
	-GRP X	7459.5	6.5	48487	75293	
	-GRP Y	8446.0	5.0	42230	43750	
	-GRP Z	6207.5	3.0	18622	23612	
				156607	183846	117.4
RESEARCH:	FTE FACULTY - A	119.43	500	59715	52440	
	+ 1/2 GRADS - B	81.47	350	28515	16024	
	- C	76.45	200	15290	13089	
	- D	66.90	75	5017	2773	
	- E	540.39	0	0	525	
				108537	84851	78.2
ACAD OFFICE:	FTE FACULTY	563.19	210			
	FTE GRADS	642.9	40	143986	143806	99.9
ADM OFFICE:	FTE STUDENTS	8571.9	9	77147	49550	64.2
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		496837	.06	74810	66354	
STUDY	FTE U/GRADS	6741.4	5.0			
	PROF U/GRADS	1187.6	12.0			
	FTE GRADS	642.9	8.0	53101	46056	
SERVICE STACK + STUDY		127911	.25	31978	34532	
				159889	146942	91.9
ATHLETICS:	FTE STUDENTS + 20000 BASE	8571.9	8.0	88575	58962	66.6
GENERAL USE:	FTE STUDENTS	8571.9	17.5	150008	114587	76.4
SPECIAL USE:	FTE STUDENTS	8571.9	6.0	51431	54897	106.7
				1047615	939031	89.6

* Does not include a provision for age-quality discount.

TABLE 20

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

YORK - YORK CAMPUS

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	14260.7	13.0	185389	201055	108.5
CLASS LAB:	LAB HOURS-GRP W		8.5			
	-GRP X	23723	6.5	154200	116489	
	-GRP Y	3098	5.0	16990	23013	
	-GRP Z	6426	3.0	19278	19939	
				190468	159441	83.7
RESEARCH:	FTE FACULTY - A	163.84	500	81920	73914	
	+ 1/2 GRADS - B		350			
	- C	140.36	200	28072	20174	
	- D	220.04	75	16503	18176	
	- E	1379.70	0	0	6024	
				126495	118288	93.5
ACAD OFFICE:	FTE FACULTY	1091.94	210			
	FTE GRADS	1623.90	40	294263	296880	100.9
ADM OFFICE:	FTE STUDENTS	14260.7	9	128346	141682	110.4
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		300000	.07			
		883025	.06	97981	79752	
STUDY	FTE U/GRADS	11711.6	5.0			
	PROF U/GRADS	925.2	12.0			
	FTE GRADS	1623.9	8.0	82651	80953	
SERVICE STACK + STUDY		180632	.25	45158	73918	
				225790	234623	103.9
ATHLETICS:	FTE STUDENTS + 20000 BASE	14260.7	8.0	134086	78970	58.8
GENERAL USE:	FTE STUDENTS	14260.7	17.5	249562	235229	94.3
SPECIAL USE:	FTE STUDENTS	14260.7	6.0	85564	45116	52.7
				1619963	1511284	93.3

* Does not include a provision for age-quality discount.

TABLE 21

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

YORK - GLENDON CAMPUS

CATEGORY	INPUT MEASURE			SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS		1242.8	13.0	16156	20000	123.8
CLASS LAB:	LAB HOURS-GRP W			8.5			
	-GRP X		657	6.5	4270	2997	
	-GRP Y			5.0		1540	
	-GRP Z		804	3.0	2412	4444	
					6682	8981	134.4
RESEARCH:	FTE FACULTY	- A	4.0	500	2000	1600	
	+ 1/2 GRADS	- B		350			
		- C	8.04	200	1608	101	
		- D		75			
		- E	99.04	0	0		
					3608	1701	47.1
ACAD OFFICE:	FTE FACULTY		111.08	210			
	FTF GRADS		0	40	23327	22365	95.9
ADM OFFICE:	FTE STUDENTS		1242.8	9	11185	9470	84.7
LIBRARY:							
STACK	FTE VOLUMES		215499	.08			
				.07			
				.06	17240	8254	
STUDY	FTE U/GRADS		1242.8	5.0			
	PROF U/GRADS			12.0			
	FTE GRADS			8.0	6214	10463	
SERVICE STACK + STUDY			23454	.25	5864	3698	
					29318	22415	76.5
ATHLETICS:	FTE STUDENTS + 20000 BASE		1242.8	8.0	29942	28004	93.5
GENERAL USE:	FTE STUDENTS		1242.8	17.5	21749	29762	136.8
SPECIAL USE:	FTE STUDENTS		1242.8	6.0	7457	7409	99.4
					149424	150107	100.5

* Does not include a provision for age-quality discount.

TABLE 22

INSTITUTIONAL SPACE REQUIREMENTS AS MEASURED BY COU REVISED SPACE STANDARDS*

RYERSON

CATEGORY	INPUT MEASURE		SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
CLASSROOM:	FTE STUDENTS	10574.3	13.0	137466	132704	96.5
CLASS LAB:	LAB HOURS-GRP W	22065	8.5	187553	83184	
	-GRP X	15607	6.5	101446	174472	
	-GRP Y	17809	5.0	89045	37079	
	-GRP Z	8340	3.0	25020	37860	
				403064	332595	82.5
RESEARCH:	FTE FACULTY - A		500			
	+ 1/2 GRADS - B		350			
	- C		200			
	- D		75			
	- E		0			
ACAD OFFICE:	FTE FACULTY	639	210			
	FTE GRADS	0	40	134190	102357	76.3
ADM OFFICE:	FTE STUDENTS	10574.3	9	95169	58986	62.0
LIBRARY:						
STACK	FTE VOLUMES	300000	.08			
		2578	.07			
			.06	24180		
STUDY	FTE U/GRADS	10574.3	5.0			
	PROF U/GRADS		12.0			
	FTE GRADS		8.0	52872	61656	
SERVICE STACK + STUDY		77052	.25	19263	21932	
				96315	83588	86.8
ATHLETICS:	FTE STUDENTS + 20000 BASE	10574.3	8.0	104595	35810	34.2
GENERAL USE:	FTE STUDENTS	10574.3	17.5	185051	114794	62.0
SPECIAL USE:	FTE STUDENTS	10574.3	6.0	63446	56069	88.4
				1219296	916903	75.2

* Does not include a provision for age-quality discount.

TABLE 23

GENERATED AND INVENTORY SPACE BY TYPE: CLASSROOMS

	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	13.0	40073	63403	158.2
CARLETON	10225.0	13.0	132925	124826	93.9
GULEPH	10655.8	13.0	138525	117359	84.7
LAKEHEAD	3391.8	13.0	44093	46446	105.3
LAURENTIAN	2963.0	13.0	38519	60950	158.2
McMASTER	10320.0	13.0	134160	114947	85.7
OTTAWA	13314.1	13.0	173083	171487	99.1
QUEEN'S	12000.0	13.0	156000	161668	103.6
TORONTO	26724.0	13.0	347412	410384	118.1
ERINDALE	3721.0	13.0	48373	48568	100.4
SCARBOROUGH	3392.0	13.0	44096	27947	63.4
TRENT	2578.0	13.0	33514	25611	76.4
WATERLOO	13199.0	13.0	171587	144012	83.9
WESTERN	16693.9	13.0	217021	236085	108.8
WLU	3677.5	13.0	47807	48983	102.5
WINDSOR	8571.9	13.0	111435	101590	91.2
YORK	14260.7	13.0	185389	201055	108.5
GLENDON	1242.8	13.0	16156	20000	123.8
RYERSON	10574.3	13.0	137466	132704	96.5
TOTAL	170587.3	13.0	2217634	2258025	101.8

TABLE 24

CLASS LAB SPACE GENERATED PER LAB CONTACT HOUR

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	7081	5.1	36205	82438	227.7
CARLETON	25840	6.5	166711	191459	114.8
GUELPH	65319	6.2	406965	309148	76.0
LAKEHEAD	13774	6.7	92972	117739	126.6
LAURENTIAN	6286	5.6	35500	57901	163.1
MCMASTER	28183	5.4	153062	172115	112.4
OTTAWA	35812	5.6	201267	199720	99.2
QUEEN'S	60565	5.7	345675	321970	93.1
TORONTO	80694	6.2	500011	545223	109.0
ERINDALE	7345	5.5	40497	56745	140.1
SCARBOROUGH	6533	5.4	35278	72858	206.5
TRENT	5692	5.1	29129	37635	129.2
WATERLOO	43677	6.0	260390	256391	98.5
WESTERN	48014	5.3	254863	350722	137.6
WLU	6094	4.7	28745	21529	74.9
WINDSOR	27674	5.7	156607	183846	117.4
YORK	33547	5.7	190468	159441	83.7
GLENDON	1461	4.6	6682	8981	134.4
RYERSON	63821	6.3	403064	332595	82.5
TOTAL	567412	5.9	3344091	3478456	104.0

TABLE 25

CLASS LAB SPACE GENERATED PER FTE STUDENT

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	11.7	36205	82438	227.7
CARLETON	10225.0	16.3	166711	191459	114.8
GUELPH	10655.8	38.2	406965	309148	76.0
LAKEHEAD	3391.8	27.4	92972	117739	126.6
LAURENTIAN	2963.0	12.0	35500	57901	163.1
MCMASTER	10320.0	14.8	153062	172113	112.4
OTTAWA	13314.1	15.1	201267	199720	99.2
QUEEN'S	12000.0	28.8	345675	321970	93.1
TORONTO	26724.0	18.7	500011	545223	109.0
ERINDALE	3721.0	10.9	40497	56745	140.1
SCARBOROUGH	3392.0	10.4	35278	72858	206.5
TRENT	2578.0	11.3	29129	37635	129.2
WATERLOO	13199.0	19.7	260390	256391	98.5
WESTERN	16693.9	15.3	254864	350722	137.6
WLU	3677.5	7.8	28745	21529	74.9
WINDSOR	8571.9	18.3	156607	183846	117.4
YORK	14260.7	13.4	190468	159441	83.7
GLENDON	1242.8	5.4	6682	8981	134.4
RYERSON	10574.3	38.1	403064	332595	82.5
TOTAL	170587.3	19.6	3344092	3478456	104.0

TABLE 26

RESEARCH SPACE GENERATED PER FTE STUDENT

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	14.8	45650	19149	41.9
CARLETON	10225.0	12.5	127783	90457	70.8
GUELPH	10655.8	[illegible]	277706	184784	66.5
LAKEHEAD	3391.8	[illegible]	50767	33439	65.9
LAURENTIAN	2963.0	10.3	30375	18630	61.3
MCMASTER	10320.0	16.6	171032	224139	131.1
OTTAWA	13314.1	18.5	246018	144839	58.9
QUEEN'S	12000.0	16.6	199450	223744	112.2
TORONTO	26724.0	26.6	710100	666716	93.9
ERINDALE	3721.0	9.4	35100	64114	182.7
SCARBOROUGH	3392.0	10.3	35050	28467	81.2
TRENT	2578.0	7.9	20340	24062	118.3
WATERLOO	13199.0	20.1	265125	289918	109.4
WESTERN	16693.9	17.4	289794	256203	88.4
WLU	3677.5	4.3	15947	7972	50.0
WINDSOR	8571.9	12.7	108537	84851	78.2
YORK	14260.7	8.9	126495	118288	93.5
GLENDON	1242.8	2.9	3608	1701	47.1
RYERSON	-	-	-	-	-
TOTAL	160013.3	17.2	2758877	2481473	89.9

TABLE 27

RESEARCH SPACE GENERATED PER FTE FACULTY

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	256.4	178.0	45650	19149	41.9
CARLETON	610.5	209.3	127783	90457	70.8
GUELPH	706.7	393.0	277706	184784	66.5
LAKEHEAD	276.8	183.4	50767	33439	65.9
LAURENTIAN	275.0	110.5	30375	18630	61.3
MCMASTER	610.8	280.0	171032	224139	131.1
OTTAWA	1072.0	229.5	246018	144839	58.9
QUEEN'S	772.4	258.2	199450	223744	112.2
TORONTO	2035.0	348.9	710100	666716	93.9
ERINDALE	213.0	164.8	35100	64114	182.7
SCARBOROUGH	222.0	157.9	35050	28467	81.2
TRENT	182.0	111.8	20340	24062	118.3
WATERLOO	764.0	347.0	265125	289918	109.4
WESTERN	1234.7	234.7	289794	256203	88.4
WLU	243.2	65.6	15947	7972	50.0
WINDSOR	563.2	192.7	108537	84851	78.2
YORK	1091.9	115.8	126495	118288	93.5
GLENDON	111.1	32.5	3608	1701	47.1
RYERSON	-	-	-	-	-
TOTAL	11240.7	245.4	2758877	2481473	89.9

TABLE 28

ACADEMIC OFFICE SPACE GENERATED PER FTE STUDENT

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	18.3	56256	70203	124.8
CARLETON	10225.0	16.8	173149	204579	118.2
GUELPH	10655.8	16.2	172151	209622	121.8
LAKEHEAD	3391.8	18.7	63530	47621	75.0
LAURENTIAN	2963.0	20.8	61670	55303	89.7
MCMASTER	10320.0	17.0	175601	168634	96.0
OTTAWA	13314.1	21.7	289272	276944	95.7
QUEEN'S	12000.0	17.8	213804	274969	128.6
TORONTO	26724.0	23.2	620630	668824	107.8
ERINDALE	3721.0	12.0	44730	54328	121.5
SCARBOROUGH	3392.0	13.7	46620	35501	76.1
TRENT	2578.0	15.2	39260	35337	90.0
WATERLOO	13199.0	16.3	215720	250014	115.9
WESTERN	16693.9	19.9	332255	312807	94.1
WLU	3677.5	16.9	62192	49814	80.1
WINDSOR	8571.9	16.8	143986	143806	99.9
YORK	14260.7	20.6	294263	296880	100.9
GLENDON	1242.8	18.8	23327	22365	95.9
RYERSON	10574.3	12.7	134190	102357	76.3
TOTAL	170587.3	18.5	3162606	3279908	103.7

TABLE 29

ADMINISTRATION OFFICE SPACE GENERATED

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	9.0	27743	25543	92.1
CARLETON	10225.8	9.0	92025	76958	83.6
GUELPH	10655.8	9.0	95902	114024	118.9
LAKEHEAD	3391.8	9.0	30526	25505	83.6
LAURENTIAN	2963.0	9.0	26667	28642	107.4
MCMASTER	10320.0	9.0	92880	98189	105.7
OTTAWA	13314.1	9.0	119827	92475	77.2
QUEEN'S	12000.0	9.0	108000	106169	98.3
TORONTO	26724.0	9.0	240516	273347	113.7
ERINDALE	3721.0	9.0	33489	20726	61.9
SCARBOROUGH	3392.0	9.0	30528	13502	44.2
TRENT	2578.0	9.0	23202	24277	104.6
WATERLOO	13199.0	9.0	118791	110996	93.4
WESTERN	16693.9	9.0	150245	160416	106.8
WLU	3677.5	9.0	33098	24547	74.2
WINDSOR	8571.9	9.0	77147	49550	64.2
YORK	14260.7	9.0	128346	141682	110.4
GLENDON	1242.8	9.0	11185	9470	84.7
RYERSON	10574.3	9.0	95169	58986	62.0
TOTAL	170587.3	9.0	1535286	1455004	94.8

TABLE 30

LIBRARY SPACE GENERATED PER FTE STUDENT

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	18.7	57608	58064	100.8
CARLETON	10225.0	16.3	166178	107362	64.6
GUELPH	10655.8	17.9	190700	146612	76.9
LAKEHEAD	3391.8	19.6	66534	56904	85.5
LAURENTIAN	2963.0	25.7	76149	67075	88.1
MCMASTER	10320.0	17.9	184809	132121	71.5
OTTAWA	13314.1	17.8	236677	185590	78.4
QUEEN'S	12000.0	19.3	231138	173957	75.3
TORONTO	26724.0	21.5	573463	629859	109.8
ERINDALE	3721.0	12.8	47684	54499	114.3
SCARBOROUGH	3392.0	13.6	46200	26866	58.2
TRENT	2578.0	22.5	58015	58959	101.6
WATERLOO	13199.0	14.0	184564	141410	76.6
WESTERN	16693.9	14.7	245846	237592	96.6
WLU	3677.5	17.1	62933	53072	84.3
WINDSOR	8571.9	18.7	159889	146942	91.9
YORK	14260.7	15.8	225790	234623	103.9
GLENDON	1242.8	23.6	29318	22415	76.5
RYERSON	10574.3	9.1	96315	83588	86.8
TOTAL	170587.3	17.2	2939810	2617510	89.0

TABLE 31

ATHLETICS SPACE GENERATED PER FTE STUDENT

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	14.5	44660	56501	126.5
CARLETON	10225.0	10.0	101800	86980	85.4
GUELPH	10655.8	9.9	105246	78894	75.0
LAKEHEAD	3391.8	13.9	47134	64311	136.4
LAURENTIAN	2963.0	14.7	43704	68005	155.6
MCMASTER	10320.0	9.9	102560	97128	94.7
OTTAWA	13314.1	9.5	126513	69985	55.3
QUEEN'S	12000.0	9.7	116000	134498	115.9
TORONTO	26724.0	8.7	233792	171035	73.2
ERINDALE	3721.0	13.4	49768	23885	48.0
SCARBOROUGH	3392.0	13.9	47136	42525	90.2
TRENT	2578.0	15.8	40624	37106	91.3
WATERLOO	13199.0	9.5	125592	70222	55.9
WESTERN	16693.9	9.2	153551	127627	83.1
WLU	3677.5	13.4	49420	47087	95.3
WINDSOR	8571.9	10.3	88575	58962	66.6
YORK	14260.7	9.4	134086	78970	58.9
GLENDON	1242.8	24.1	29942	28004	93.5
RYERSON	10574.3	9.9	104595	35810	34.2
TOTAL	170587.3	10.2	1744698	1377535	79.0

TABLE 32

GENERAL USE SPACE GENERATED

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	17.5	53944	81811	151.7
CARLETON	10225.0	17.5	178938	164357	91.9
GUELPH	10655.8	17.5	186477	216081	115.9
LAKEHEAD	3391.8	17.5	59357	52383	88.3
LAURENTIAN	2963.0	17.5	51853	57310	110.5
MCMASTER	10320.0	17.5	180600	138759	76.8
OTTAWA	13314.1	17.5	232997	199045	85.4
QUEEN'S	12000.0	17.5	210000	231185	110.1
TORONTO	26724.0	17.5	467670	349907	74.8
ERINDALE	3721.0	17.5	65118	67133	103.1
SCARBOROUGH	3392.0	17.5	59360	41443	69.8
TRENT	2578.0	17.5	45115	55183	122.3
WATERLOO	13199.0	17.5	230982	193551	83.8
WESTERN	16693.9	17.5	292143	384915	131.8
WLU	3677.5	17.5	64356	57702	89.7
WINDSOR	8571.9	17.5	150008	114587	76.4
YORK	14260.7	17.5	249562	235229	94.3
GLENDON	1242.8	17.5	21749	29762	136.8
RYERSON	10574.3	17.5	185051	114794	62.0
TOTAL	170587.3	17.5	2985280	2785137	93.3

TABLE 33

SPECIAL USE SPACE GENERATED

INSTITUTION	INPUT MEASURE	SPACE FACTOR	SPACE GENERATED	INVENTORY	% I/G
BROCK	3082.5	6.0	18495	27261	147.4
CARLETON	10225.0	6.0	61350	52601	85.7
GUELPH	10655.8	6.0	63935	99437	155.5
LAKEHEAD	3391.8	6.0	20351	24243	119.1
LAURENTIAN	2963	6.0	17778	24160	135.9
MCMASTER	10320.0	6.0	61920	100349	162.1
OTTAWA	13314.1	6.0	79885	50398	63.1
QUEEN'S	12000.0	6.0	72000	79593	110.5
TORONTO	26724.0	6.0	160344	129160	80.6
ERINDALE	3721.0	6.0	22326	17686	79.2
SCARBOROUGH	3392.0	6.0	20352	36230	178.0
TRENT	2578.0	6.0	15468	17371	112.3
WATERLOO	13199.0	6.0	79194	112000	141.4
WESTERN	16693.9	6.0	100163	95479	95.3
WLU	3677.5	6.0	22065	19449	88.1
WINDSOR	8571.9	6.0	51431	54897	106.7
YORK	14260.7	6.0	85564	45116	52.7
GLENDON	1242.8	6.0	7457	7409	99.4
RYERSON	10574.3	6.0	63446	56069	88.4
TOTAL	170587.3	6.0	1023524	1048908	102.5

TABLE 34

TOTAL SPACE GENERATED PER FTE STUDENT

INSTITUTION	INPUT MEASURE	SPACE GENERATED	GENERATED PER FTE	INVENTORY	INVENTORY PER FTE	% I/G
BROCK	3082.5	380634	123.5	484373	157.1	127.3
CARLETON	10225.0	1200859	117.4	1099579	107.5	91.6
GUELPH	10655.8	1637607	153.7	1475961	138.5	90.1
LAKEHEAD	3391.8	475264	140.1	468591	138.2	98.6
LAURENTIAN	2963.0	382215	129.0	437976	147.8	114.6
MCMASTER	10320.0	1256624	121.8	1246381	120.8	99.2
OTTAWA	13314.1	1705539	128.1	1390483	104.4	81.5
QUEEN'S	12000.0	1652067	137.7	1707753	142.3	103.4
TORONTO	26724.0	3853938	144.2	3844455	143.9	99.8
ERINDALE	3721.0	387085	104.0	407684	109.6	105.3
SCARBOROUGH	3392.0	364620	107.5	325339	95.9	89.2
TRENT	2578.0	304666	118.2	315541	122.4	103.6
WATERLOO	13199.0	1651945	125.2	1568514	118.8	94.9
WESTERN	16693.9	2035883	122.0	2161846	129.5	106.2
WLU	3677.5	386563	105.1	330155	89.8	85.4
WINDSOR	8571.9	1047615	122.2	939031	109.5	89.6
YORK	14260.7	1619963	113.6	1511284	106.0	93.3
GLENDON	1242.8	149424	120.2	150107	120.8	100.5
RYERSON	10574.3	1219296	115.3	916903	86.7	75.2
TOTAL	170587.3	21711807	127.3	20781956	121.8	95.7